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VIEW OF JACKSON STREET MARKET ALONG TEMPERANCE STREET

PUBLIC MARKET OF ST. PAUL

Five Open Sheds Between Paved Driveways—Details of Construction—Rental Prices—Duties of Market Master—Cost and Maintenance Accounts—Sheds for Hucksters, Growers, Butchers and Hay

By C. L. ANNAN

THE Jackson street market in the City of St. Paul, Minn., was the outcome of several years of agitation. The site of the old market on Seventh street was becoming too valuable for market purposes and was, moreover, inadequate in area, and the fine old building, once the pride of the city, was consequently converted to other purposes. The lower story was remodeled, divided and leased to retail mercantile concerns and the Public Library, having outgrown the upper floor of the City Hall building, was transferred to the greater area offered by the upper story of the Market House.

In 1899 a dozen or more proposed market sites in various parts of the city were investigated. The next year a Market Site Commission was appointed and \$60,000 was appropriated from the general fund of the 1901 budget.

The Jackson street site was straightway condemned and purchased and a portion of the tract, which comprised about 2½ acres, was at once improved. The ground was cleared, graded and paved and five sheds were erected. The driveways between the sheds extend from Jackson street at grade,

easterly toward Temperance street on a 3 per cent slope and then pitch 3 ft. in 18 ft. to Temperance street, between limestone retaining walls which re-enter from and extend along Temperance street. The ground also slopes toward Tenth street, the southern boundary. Each driveway, 54 ft. wide, is curbed with granite and paved with brick on concrete, the sharp pitches excepted. These are paved with sandstone, a common pavement for steep grades in St. Paul.

The drainage is led to a sewer in Temperance street. A 4-inch water main runs through the center of the tract at right angles to the sheds. This main is tapped for two 1½-inch services for each shed. Water closets were separately connected with the Temperance street main. A 20 by 30-inch iron sink with self-closing bibbs was installed in each of the twelve hucksters stalls in shed No. 1.

The first shed backing on Tenth street is two feet narrower than the other four sheds and is devoted to hucksters stalls. The sheds are from 208 to 217 feet long (the site being a trapezoid) and about 47 feet wide from out to out of over-



VIEW OF EAST TENTH STREET SIDE

hang. There are 16 pairs of posts to each shed, the two posts of each pair being 16 feet $6\frac{3}{4}$ inches apart between centers. These posts are of hollow steel cylindrical columns set in cast-iron shoes bolted to limestone pedestals, and support rolled steel trusses. Corrugated steel roofing rests on wooden joists and purlins. The roofing was given two coats of pure graphite paint on the outside and one coat on the inside. The floor of the Market Master's office is 2 x 6-inch white pine, all others are of concrete tile. The sashes in the stalls are hinged at the top. The stalls in the first shed, of which there are 12, are about 14 x 18 feet in area, each provided with shelving and counters.

The toilet rooms, frame structures 9 x 16 feet, one for women and the other for men, are at the east end of sheds Nos. 3 and 5 respectively. The Market Master's office, a 14 x 16-foot frame building, stands in shed No. 4, between the toilet rooms. A weighing scale of 10 tons capacity was placed in Temperance street opposite the Market Master's office.

In 1904 one more shed was erected and two driveways were graded and paved to conform with the earlier work. In 1908 it became necessary to reroof the sheds built seven years before. The original roofs were of No. 22 corrugated steel, painted. The new roofs were of No. 24 corrugated galvanized iron.

The ordinance establishing this "Central Public Market" discontinued all other such markets and made provisions briefly noted below.

Market hours, 6 am. m. to 2 p. m.

Rent of sheds, 10 cents per day per wagon.

Rent of stalls, \$10 per month.

Season, May 15 to Nov. 15.

Teams to enter Jackson street side, to be immediately unhitched and taken out on Temperance street side.

Market Master to be elected biennially. To have police power, to test weights and measures gratis, to confiscate property of short weight traders, to make weekly returns of collections to City Clerk. Fine or imprisonment to be imposed by Municipal Court for violations of ordinance.

Cost of Market Site and Improvements to Date

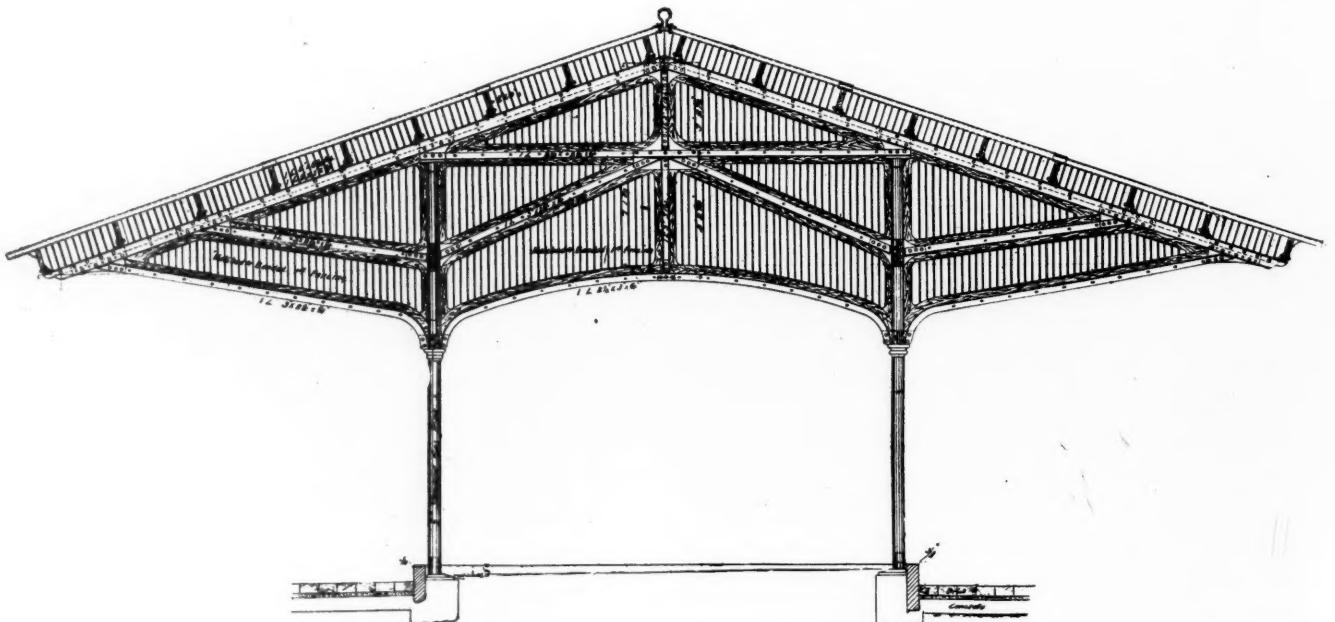
Total cost of site.....	\$66,880.00
Grading for five sheds, with retaining walls and 340 ft. of 12-inch sewer	2,800.00
Paving and curbing.....	12,034.00
Five sheds erected.....	9,420.00
Plumbing, including all excavation and tapping of mains	2,040.00
Roofing material	2,434.00
Stalls, office and water closets.....	2,895.00
Weighing scale	320.00
An additional shed	3,120.00
Two driveways graded, curbed and paved with retaining walls and 100 ft. of 9-inch sewer.....	11,067.00
Re-roofing five sheds.....	3,480.00
	\$116,490.00

Market Maintenance Account, 1909

	Dr.	Cr.
Balance Jan. 1, 1909.....	\$459.08	
Monthly rents	4,438.45	
Daily rents	2,107.70	
Weighing charges	366.00	
Miscellaneous	5.00	
To General Fund.....		\$6,917.15
From City Officers Salary Fund.....	1,000.00	
From General Fund	4,000.00	
Market Master's salary.....		1,000.00
Payrolls		2,977.18
Repairs		702.00
Supplies, etc.		762.57
Balance Dec. 31, 1909.....		17.33
	\$12,376.23	\$12,376.23

Receipts are turned into the general fund, from which transfer is made to meet expenses, except that the Market Master's salary is paid from a special fund.

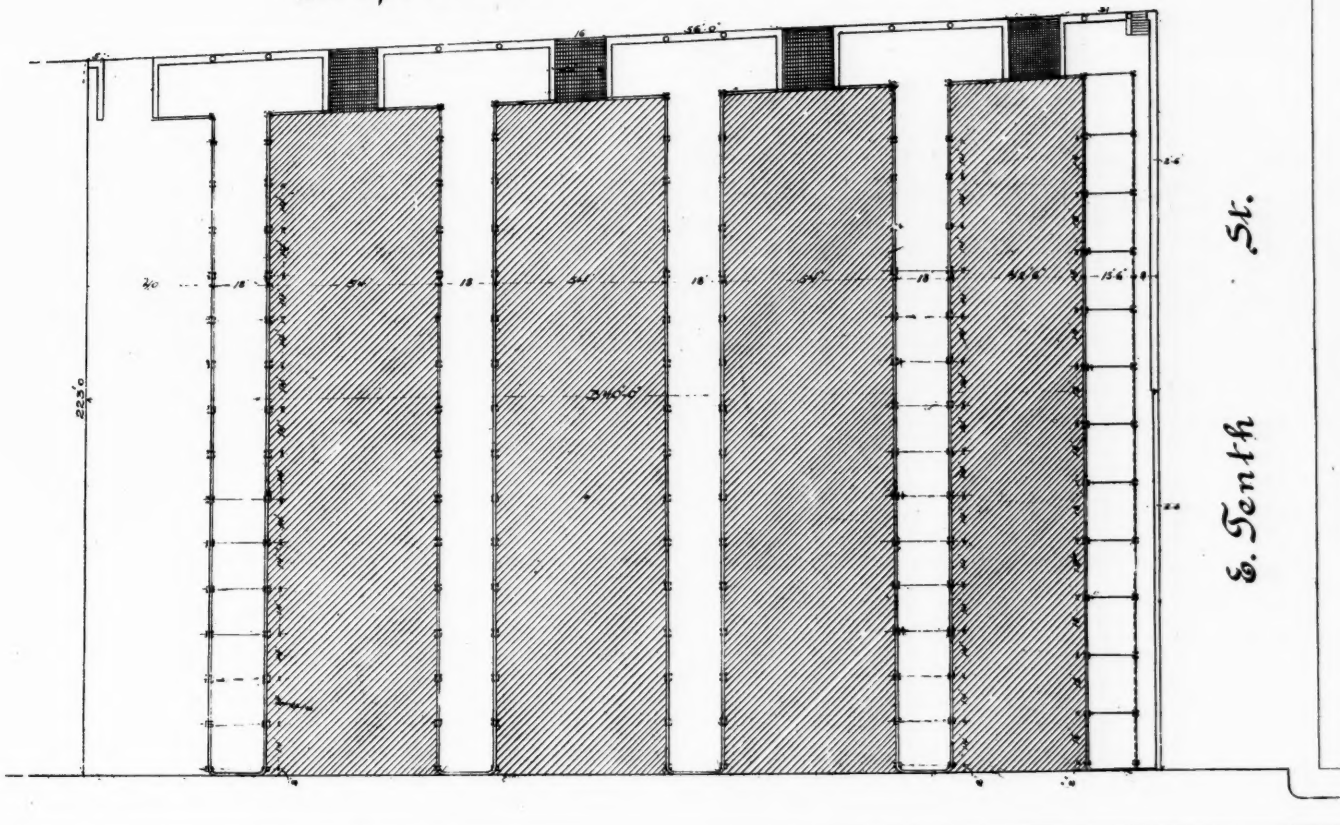
In actual practice the stalls in Shed A, designed for hucksters, are used for storing the various provisions to be marketed from day to day. Shed B is turned over to the hucksters for market display. About one quarter of Shed B is constantly employed during the summer (including space devoted to a fish market two days in the week). In the winter even more of this space is occupied for the distribution of wholesale meats. During the summer sheds C, D and E, "grower's sheds."



PORTAL TRUSS, JACKSON STREET MARKET, ST. PAUL

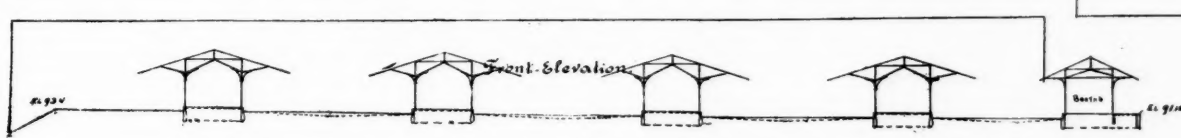
Temperance

St.



Jackson

St.



GENERAL PLAN AND FRONT ELEVATION OF JACKSON STREET MARKET

are almost wholly and constantly tenanted for the disposal of wholesale garden truck. Shed F accommodates the winter hay market. There is no flushing of the market at any season, but the floors and pavements are thoroughly swept.



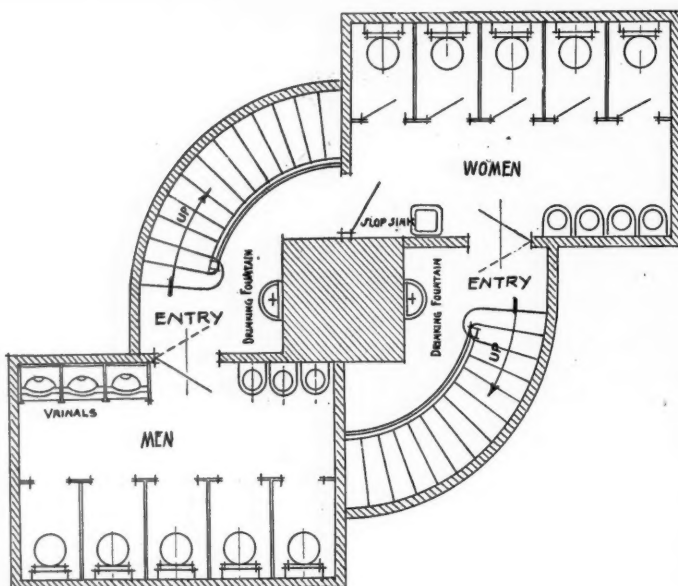
PROPOSED PUBLIC COMFORT STATION, SAN FRANCISCO

UNIQUE PUBLIC COMFORT STATION

To meet the demand for a public convenience which other large cities have for years realized as imperative, a public comfort station for that city has been designed by Mr. N. M. Mohr as City Architect (a position which he has just resigned), which is out of the ordinary both in general plan of the station itself and also in the general design of the structure above ground. The latter, as is shown by the sketch herewith reproduced, suggests somewhat the Chinese style of architecture and combines a shelter and two annular stair cases leading to the two rooms beneath the surface. The location for which this was designed is the junction of Market and Kearney streets, a very busy corner of the city. At present there is located here a fountain known as Lotta's fountain, which will be allowed to remain as the central feature of the ornamental superstructure. The immediate reason for the design of this station was a petition presented by a number of Women's Clubs in the city to the Board of Supervisors requesting that they appropriate the money for constructing such stations in the congested downtown districts.

The station is designed to be constructed of reinforced concrete. The plumbing and conveniences generally are to be those ordinarily found in structures of this kind and their general arrangement is indicated on the plan presented herewith. It is proposed to make the superstructure of cast iron ornamented with bronze or some other more expensive metal; the roof panels to be of reinforced glass of colors blended to harmonize with each other and the surroundings.

It is encouraging to notice in this and in two or three of the



PLAN OF PUBLIC COMFORT STATION

public comfort stations described by us during the past few months a desire to make the superstructure architecturally attractive and to provide, in connection with them, shelters as well as entrances to the station proper.

TACOMA'S WATER WORKS

TACOMA, WASH., during the calendar and fiscal year of 1909 had total receipts amounting to \$328,028.86, of which \$179,288.85 was from unmetered services and \$98,109.85 from metered services; \$32,363.55 being received from the city for fire protection and other services rendered, or just about 10 per cent of the total receipts. The total is \$11,775 greater than for 1908. The expenses of operation during the year were \$149,811.18, of which \$40,203.94 was for labor, \$11,984.05 for fuel, \$22,024.52 for power at the South Tacoma wells (making a total for power of \$34,008.57); \$68,625 was for interest on bonds, and the balance was for oil, hardware, feed and other miscellaneous items.

Repairs and maintenance totaled \$56,568.51, of which labor amounted to \$46,171.40, repairs to machinery \$5,393.90, feed \$1,008.46, and the balance was for lumber, cement, oil and other materials, pavement repairs, etc. These two items of operation and repairs amount together to \$206,371.69, this including the payment of interest on bonds. This deducted from the receipts leaves a balance of \$121,657.17. Of this \$103,629.75 was used in new construction, about \$33,000 for labor, \$29,000 for pipe and fittings, \$25,000 for reservoir and pumping stations, \$8,600 at the South Tacoma wells, and the remainder for meters, feed and other miscellaneous expenses. We judge the plant to be worth about \$2,000,000. Adding to the balance of \$121,657.17 the \$68,625 interest on bonds, we have a total of \$190,282.17, which is about 9 per cent on the estimated value of the plant, which would seem amply sufficient to cover interest, depreciation and all other fixed expenses on the plant.

We are glad to find that the department receives, apparently in cash, from the city what is probably an approximation of the value given by the Water Department. In several cities where actual measurement or a close estimate has been made of the amount of water used by the city, this has been found to be about one-fourth to one-sixth of the total consumption. As stated in our issue of May 4, practically the same proportion of the total cost of the plant is believed by the United States Geological Survey to be invested in that part of it which is provided for fire protection only. If conditions in Tacoma are the same as in the cities from which these estimates were prepared, the department is receiving payment for about one-half of the service rendered, which is a great deal more than is being received by the majority of departments.

SEWAGE PUMPING APPLIANCES

General Arrangement of Plant—Centrifugal Pumps and Pneumatic Ejectors—Screening More Necessary with Former—Efficiency of Each

By George T. Hammond

Engineer of Design, Sewer Bureau, Brooklyn, N. Y.

The following article, by an engineer of wide experience in sewer designing, gives the best statement of the principles of sewage pumping which we remember to have seen. After it had been written arrangement was made with the author by Merritt & Company for publishing it in their advertising periodical called "Progress in Sewage Treatment," since the author's conclusions were seen to be generally favorable to the air lift method of sewage pumping. It is, however, primarily not advertising matter but an expression of the opinion of an unbiased expert; and as such we are publishing it, with the consent of the author and of Merritt & Company.

WHERE low-lying districts must be sewered and the flow collected at sumps and lifted into high level sewers, some method of elevating the flow must be selected which shall be adapted to the service required, simple in its design, automatic and reliable under all circumstances. The problem is not easy of solution in all cases. Some of the main factors to be considered are the quantity and constancy of volume of the flow; the head against which it is required to operate; the size of the plant, and especially the adaptability and reliability of the different kinds of apparatus.

The most available apparatus obtainable is of two different types: the centrifugal pump, and the pneumatic ejector. Other methods of lifting sewage are in use, but are special in character and related to some local condition. The size of the plant has much to do with the selection of apparatus. There is considerable range in the size of sewage lifting stations; the stations may, perhaps, take the flow from a few houses on a very short line of pipe, or may take the flow from an urban district having a population of several thousand persons.

Centrifugal pumps, electrically driven, and pneumatic ejectors actuated by compressed air, supplied by electrically driven compressors, may either of them be used; but each type of apparatus has certain advantages and certain disadvantages under various conditions of operations, and these must afford us our best guide.

A small size centrifugal pumping plant should consist of two pumps of the submerged open impeller type, actuated by electric motors of such design that they will not be affected by moisture, that will start and stop automatically by means of apparatus controlled by floats rising and falling with the water line in the sewage well; and they should be equipped with overload stopping devices so as to provide against the contingency of a clogged impeller, etc. The floats should be so adjusted that one pump will start at the elevation of the standard water line, and the other pump at a somewhat higher elevation. This plant may be placed under the surface of the roadway and the equipment will work reliably, but it should be watched and at the very least it should be inspected daily.

The adaptability of this plant depends, first of all, upon its size, and the quantity of sewage to be pumped. The pumps should not be so small as to make screening of the sewage necessary. Pneumatic ejectors can be used in almost any size and the sewage lifted by them does not require to be screened; therefore it is evident that if a centrifugal pump would be too small to work on unscreened sewage, the indications are for an ejector plant and not for a centrifugal pumping plant.

It should not be forgotten that, as a general rule, screening sewage and removing the screenings cause a nuisance during the removing of the screenings, which are always foul and bad smelling, as well as unsightly, and that screening adds to the cost of operation. This limits the smallest size of centrifugal pump which it will probably be safe to employ.

The centrifugal pumping plant is adapted to and reliable for a station in which the flow is fairly constant and enough in quantity to operate a 6-inch pump without long resting per-

iods. Its best work is done when the size of the pump can be so apportioned to the flow that pumping will be fairly continuous. A telltale device should be introduced to show whether the pumps are working. This may be accomplished by a wire connection with a central station, or even by an alarm bell put on a neighboring electric light pole, etc.

Some of the advantages of the centrifugal pumping plants are: simplicity of parts, strength and capacity for work, and, if not too small for the work, great reliability. But the motors must be of full size required to operate the pumps at the maximum flow continuously. The pumps must be placed either directly in a sump or well of considerable size, or else they must be so connected with such a well that their impellers will be constantly submerged in order to start automatically, and this means a considerable excavation and a rather costly structure. If sewage is not screened there is always a liability to clogging, even in a 6-inch pump; but if two pumps are provided, it is unlikely that both will become clogged at the same time.

For raising sewage the pneumatic ejector is a very satisfactory mechanism and, incidentally, the effect of the compressed air on the sewage possibly facilitates subsequent oxidation. The ejector has been developed by experience in operation and the best forms now made have but few moving parts and are almost fool proof. If the principal consideration in a lifting plant is handling the flow in a sanitary manner, the ejector would seem to be the best solution of the problem.

The method of installing a central compressor plant and piping the compressed air to various lifting stations is very satisfactory from a sanitary point of view, but it is expensive in first cost, as well as in maintenance, and possible failure of the pressure pipe is an element of danger, and loss of pressure by friction in the air pipes must be allowed for as an item of expense.

The centrifugal pump, if kept in perfect repair, may be cheaper to operate, because the motor is applied directly to the lifting mechanism, while in the case of the ejector the air pipe and the air compressor are introduced between the motor and the lifting mechanism. But this advantage of the pump over the ejector is not as great as on first sight may appear, as the centrifugal pump loses efficiency by wear of the impeller and casing to an extent difficult to forecast, and sometimes quite rapidly. The presence of sand or gritty material, even in small amounts, in the sewage may cause a marked deterioration in the pump within a few months, and it is to be expected that the pump will require being rebuilt or even replaced within ten years at the most. Sooner or later every such pump installed will get clogged or fail to work for some reason, and probably within ten or twelve years it will be necessary to rebuild, or replace it with a new pump. Direct-connected vertical electric motor-driven centrifugal pumps must of necessity operate at a relatively high speed and are therefore more delicate and liable to disorders than pumps of this type of a larger size designed to run more slowly. It is, therefore, best to install two pumps, each capable of doing the work alone, since it is not to be expected that both will fail at the same time if properly watched; this is the usual practice in sewage work.

The efficiency decreases with wear of the pump, but it is not customary at once to replace a worn impeller, as the expense and bother of doing so will in most cases be too great, and there is much probability that the fall in efficiency will not be noticed, except when the cost for power is met by paying the bill for current; and deterioration will be permitted to go on until the pump efficiency has fallen far below good service. On the whole, it may as well be admitted that the average efficiency of a centrifugal pump for operation over a ten years' period will be about the same as or less than the average for a pneumatic ejector for the same period. The practical man will consider this aspect of the question and not be misled by the high efficiency of the pump when new and in perfect repair.

The ejector, on the other hand, does not appear to lose efficiency from wear, but rather to gain, on account of smoother operation. If the air is used expansively for propelling the flow and the mechanism is kept in fair order, there seems no reason to fear loss from low efficiency, and the life of an ejector is much greater than that of a centrifugal pump. I understand that some ejectors which have been in use for twenty years are in practically as good condition as when installed, and with a good type of ejector this is just about what one would expect, as the compressed air in the ejector takes the place of the impeller and moving shaft in the pump. For the same reason the ejector is easier to keep in first-class working order than the pump.

Much might be said as to the best design of centrifugal pumps and ejectors in sewerage work, but this would scarcely be a proper subject for discussion in the limits set for this paper. Some designs of pumps are specially well fitted for this service, others are useless and have done much to discredit the use of centrifugal pumps in sewerage.

So far as satisfactory operation is concerned, the ejector can be used in any sewage-lifting plant, and it will work satisfactorily on unscreened sewage. The ejector is adapted to plants of any size, but is especially well adapted to the smaller plants, or larger plants with low lift. The ejector will operate successfully on any lift, and will give better results on lifts of over 50 feet than will the ordinary centrifugal pump.

The method of installing electrically driven air compressors at each ejector station promises excellent results where it saves the loss on transmission of air in long pipes from a central station. Such plants can be provided with very simple starting and stopping devices and will operate automatically. This method has the added advantage, that it makes the adjustment of the air pressure at each station easily possible to meet the local requirement as indicated by the head or lift against which the sewage must be discharged.

The height to which sewage is required to be raised at different substations is seldom the same throughout a collecting system. Where a number of ejectors are each supplied with compressed air of equal pressure from a central compressor plant, and each is required to discharge against the same head, which is the proper head for the most efficient use of the air pressure, the central station system reaches its highest efficiency; but this is seldom the case. Usually the heads against which the ejectors must discharge are different for each substation, and the pressure of the air compressed at the central compressor station must be proper for the highest lifts required and the low lifts must use it at a loss in efficiency, unless the air is used expansively.

The ejector plant may consist of two ejectors placed in the ejector pit, or one ejector pot with duplicate entrance and exit valves; an electrically driven air compressor of suitable size; air reservoir, and automatic start and stop devices. To insure safety, two compressors may be installed. Where electric current is not available, the compressors may be actuated by a water-power motor taking water from a city main, etc.

The size of the compressor and motor should be designed to provide for the rate of maximum flow, and may be made as small as this will justify, so as to secure nearly continuous operation of these parts of the plant while the ejector chamber is filling. This is an advantage in favor of the ejector plant. As the centrifugal pump plant must consist of pumps of a size which will work on unscreened sewage, the motors to drive the pumps must be of full size for maximum operation of the pumps, which may continue only a few minutes at a time, with a rest period while the well is filling, and on account of their size the large motors will be the more expensive.

No rule can be laid down as to the comparative cost of the installation of the two methods. Conditions make much difference in the extent of the plant required and the first cost of apparatus varies in different parts of the country and in different designs of pumps and ejectors, but there is one item in which the ejector has an advantage, other things being equal, and that is in the size of the masonry structure. In

the case of the pump, a collecting well should be provided, which shall be capable of holding sufficient of the flow to permit the pump to operate at least fifteen or twenty minutes continuously after the automatic starting device has set the motor going, and a longer period of operation than this is very desirable, as the loss of power in starting must be considered and can be cut down only by making the operating periods as long and as few, during the daily cycle of work, as possible. The well from which the pumps draw should, therefore, be as large as possible, but it should not be so large that the sewage will remain in it long enough to become septic. From the standpoint of the centrifugal pump it should be large, but from all sanitary standpoints it should be small, and the smaller it is the less will it cost and the less liable will it be to cause a nuisance. In the case of the ejector the sewage passes from the discharging sewer directly into the pot or chamber of the ejector itself, and is at all times entirely enclosed within the cast-iron shell and the pipes. Where each ejector station is a complete plant in itself, the compressed air is discharged from the compressor into the air reservoir, whence it passes as required without jar or vibration or loss from friction. The mechanism is actuated by an electric motor, as is the centrifugal pump, but the air compressor plant can store air for the cycle of discharge and the motor driving the compressor can run longer periods than can the motor driving the centrifugal pump, to which it is directly connected; therefore it need not be as large or as costly, and it can be more easily and smoothly actuated by the pneumatic governor than can the larger size motor driving the pump actuated by the float switch.

As electric current is used in either case, and the actual amount of sewage to be pumped per day will be the same for either method of pumping, the actual cost for current will obviously be less as the percentage of efficiency increases, and vice versa. It is, therefore, of interest to compare the efficiencies of the two methods.

The centrifugal pump is the reverse of a turbine wheel, and any turbine when run backwards by power applied to its axle will raise water through its penstock. Like a reaction turbine, it must be run at a certain speed in order to give the maximum efficiency of which it is capable. Since the speed must increase with increase of head pumped against, the efficiency must decrease with the increase of the lift or head. This theoretical conclusion has been verified by practical tests. Webber gives the following as the mean results derived from a number of experiments, the efficiency computed being the ratio of the work done by the pump to that obtained from indicator cards taken on the cylinders of the steam motor:

Lift in feet.....	5	10	20	40	60
Efficiency	0.56	0.64	0.68	0.58	0.40

The above shows the comparative efficiency of large size high grade, first-class water works centrifugal pumps, working under test conditions, against the head or lift in feet indicated. Such pumps, under the given conditions, give a much higher efficiency than in ordinary service, and far higher than can be expected from an open impeller sewage type of pump in ordinary service; but the comparative effect of different lifts will be nearly the same in each class and size.

The following table of centrifugal pump efficiencies is made up from information obtained from four large American pump makers, and very fairly represent what may be expected from sewage pumps of this type in ordinary service. The manufacturers are indicated by the letters A, B, C, D. The average of percentages is also given. The lift is 30 feet.

Size of Pump, Inches	Average Efficiency of Centrifugal Pumps				
	A	B	C	D	Average
	Effy. Per cent	Effy. Per cent	Effy. Per cent	Effy. Per cent	Effy. Per cent
4	38	40	45	40	41
6	43	45	53	45	47
8	50	50	55	50	51
10	52	50	58	53	53
12	55	52	59	59	56

The pumps in Column C are belt driven, and the efficiency stated is probably too high.

Centrifugal pumps made for pumping clear water will give from 5 per cent to 10 per cent more efficiency in ordinary service than is stated above.

The following table shows about the efficiency that may be expected from centrifugal pumps in ordinary service on sewage. Lift 20 to 30 feet.

Size Pumps	Single Stage, Open Type Impeller in Ordinary Service.	Centrifugal Pumps for Sewage
	Effy. Pumps Per cent	Effy. Motor Per cent Combined Effy. Per cent
4-inch	40	85 34.0
6 "	46	85 39.1
8 "	50	88 44.0
10 "	54	90 48.6

Accurate tests of the efficiency of centrifugal pumps have not been very numerous, and the published results of tests, etc., are somewhat conflicting. An interesting paper on the subject of centrifugal pump efficiency was presented to the American Society of Civil Engineers by Mr. Philip E. Harroun, M. Am. Soc. C. E., February 7, 1906 (*Transactions, Am. Soc. C. E.*, Vol. LVI, p. 144). The paper described tests made with the highest class three-stage pumps, which were claimed by the manufacturers to give 75 per cent to 80 per cent efficiency; and the writer concluded that with these an efficiency "of from 55 per cent to 60 per cent was seldom exceeded." In the discussion of this paper several tests made on ordinary single stage pumps were presented in which, for the smaller sizes of pumps, efficiencies varied from 30 per cent to 50 per cent, with which my own experience with pumps of this class agrees.

Instances might be given of the result of tests on centrifugal pumping plants in a number of American cities; but they would show rather unfairly against this form of pump, as there are but few plants that have been kept in first rate order.

At Saratoga one of the best centrifugal sewage pumping plants ever designed showed upon completion that its three centrifugal pumps (size 8 in., head 28 ft.), had an over-all efficiency of 35 per cent. This plant has been kept in perfect repair, and has given good satisfaction, but the sewage is screened before passing to the pumps. The pumps are electric motor driven, and are automatically actuated by means of floats.

For data on the efficiency of the pneumatic ejector we must look chiefly to the studies made by English engineers, and considerable data have been presented. The most important information available will be found in the following papers presented to the Institution of Civil Engineers, and published in their proceedings: "The Karachi Sewerage Works," by Mr. James Strachan, M. Inst. C. E. (*Proceedings Inst. C. E.*, Vol. CXXXV, p. 272.) "The Shone System at Karachi," by Mr. James Forrest Brunton, M. Inst. C. E. "The Sewerage of Douglas, Isle of Man," by Stevenson and Burstal, M.M. Inst. C. E. (*Proceedings Inst. C. E.*, Vol. CLX, p. 211, 1904-05.) "The Efficiency of the Shone System of Pumping," by Mr. Charles L. Cox, M. Inst. C. E. (*Proceedings of Inst. C. E.*, Vol. CLXVIII, 1906-07.)

Mr. J. A. Coombs, Member of Institute of Civil Engineers of Great Britain, contributed the efficiency table from which the following is made, to a discussion of pneumatic ejectors before the Institution. (See Vol. CLX, *Proceedings, Institution of Civil Engineers.*) It gives a comparison between the actual work required in the compression of the air, and the work which can be done by the air in the ejector. He has taken 65 per cent as the amount of ejector efficiency which he con-

Efficiency of Compressed Air in Pneumatic Ejectors.

Gauge Pressure Lbs. per sq. in.	Total Head, Feet	Foot lbs. of work Required to compress 1 cu. ft. of free air Ft. lbs.	Foot lbs. of work Exerted in ejector by 1 cu. ft. of free air Ft. lbs.	Theoretical Efficiency Per cent	Working Efficiency 65% of Theoretical Per cent
5	11.54	647	537	83	54
10	23.07	1,185	857	72	47
15	34.61	1,650	1,069	65	42
20	46.14	2,063	1,221	59	38
25	57.68	2,439	1,331	56	36
30	69.21	2,779	1,421	51	33
35	80.75	3,092	1,491	48	31
40	92.28	3,386	1,549	46	30

siders fair, as it gives figures which the manufacturers of pneumatic ejectors are willing to guarantee.

In the above table the working efficiency of the ejector is taken as equal to 65 per cent of the theoretical efficiency; that is, it is assumed the ejector will, under working conditions, develop 65 per cent of the theoretical efficiency. Experience shows this to be approximately correct, but there is no essential reason why it should not be increased, if various losses from leakage in valves can be prevented, and especially if the air can be used expansively. It will be observed that, as in the case of the centrifugal pump, the efficiency of an ejector installation, especially if the air is used non-expansively, is highest for low pressures, and decreases as the pressure increases. The best results are obtained with a pressure of 15 pounds to 20 pounds per square inch. This is not, however, of so much consequence in practice as might at first appear, as for the purpose of elevating sewage a head of 30 feet will seldom be exceeded.

The above table does not take into account losses from leakage in the distribution of air from a central compression station through long pipes, and this, in fact, is an important study by itself. Not including loss of pressure, etc., from friction of air in the pipes, but leakage only, experience shows that the efficiency of pipe lines for distributing compressed air is from 88 per cent to 98 per cent.

It cannot, however, be too strongly maintained that in dealing with a substance like sewage the main point is not the highest mechanical efficiency, but the "Sanitary Efficiency," or effective working of the plant in discharging crude sewage without screening it, or handling any part of it by manual labor, as has been so well stated by Mr. C. T. A. Hanssen, M. Inst. C. E., in the discussion referred to above. (Vol. CLX, *Proceedings, Institution of Civil Engineers.*) In the same discussion Mr. James Strachan, M. Inst. C. E., stated that he believed

"—that the compressed air method, if only the works were correctly designed and properly executed and maintained, would always prove to be more economical and better adapted for the automatic and sanitary collection and ejection of sewage within flat low-lying districts than any of the other systems named." (i.e., pumps, vacuum pumps, etc.)

The pneumatic ejector has been used more extensively abroad than in this country, and on all varieties of service. At the Birmingham sewage works in England an ejector is used to force sewage sludge through a main three and a half miles long. At Hampton on Thames the whole sewage flow of the borough is collected at eight ejector stations and elevated to the filtration works, a lift of about 70 feet. Ejectors were used at Eastbourne as early as 1880 and have given satisfaction. There now are more than seventy cities in the United Kingdom alone, using pneumatic ejectors on sewage. In this country there are more than twenty cities in which ejectors are employed for this purpose. In India are some of the most extensive installations for this purpose, as at Bombay, Rangoon, and Karachi. It may be said without hesitation that ejectors have passed the experimental stage, and in the light of experience that they may be installed with confidence that they will give satisfactory service.

To sum up the results of this investigation, it seems evident that the ejector has the advantage over the centrifugal pump in that it requires no screening of sewage, does not require a collecting well, and is less likely to become clogged up with materials in suspension, and it is about equally efficient in cost of power.

For small plants sanitary efficiency is of more importance than cost of plant or of operation, and even if that method possessing the highest sanitary efficiency cost more than another to install or operate, it should nevertheless be chosen. The practical engineer will easily determine the point at which, from quantity or flow or other conditions, a centrifugal pump would be preferable; but the writer is convinced that in the great majority of cases the pneumatic ejector should be employed in sewage lifting stations.

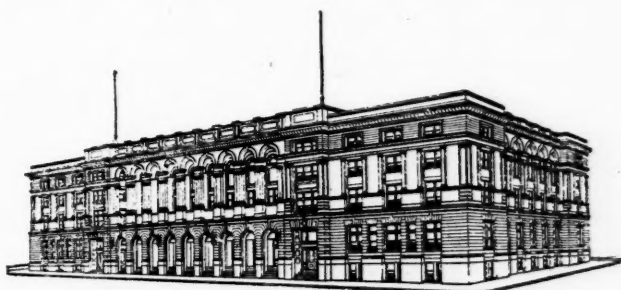
Whichever apparatus is installed, as much protection as possible should be afforded in preventing pieces of wood, scrubbing brushes, etc., from entering with the flow. As has already been remarked, it is undesirable to screen the flow at a local pumping or lifting station, and so far as ordinary sewage is concerned it is unnecessary; but the entrance to the pump or ejector chamber may be protected by a suitable arrangement of rods, etc., so spaced that while they will not retain ordinary sewage screenings, they will retain large and dangerous articles that would injure the apparatus. There is much room for ingenuity in this feature of the design, which, if used, must be easily accessible for daily inspection and adjustment.

It will be seen from the foregoing that each type of plant has its greatest adaptability. The pneumatic ejector is an especially satisfactory means of lifting sewage wherever a reliable apparatus is desirable for handling a small quantity of flow, or a considerable quantity coming to the plant in a variable amount. Where the flow is quite variable in quantity it is much better than a centrifugal pump. Again, it is much better than the centrifugal pump if the flow contains much floating matter, and it will operate on sludge as well as on sewage without screening. It requires much less attention than the centrifugal pump, and where inspection of the pump would be difficult the ejector should always be chosen. The centrifugal pump works best where the flow is quite constant and of considerable quantity, and the head does not exceed 50 feet.

NOVEL CITY HALL AUDITORIUM

THE proposed combined City Hall and Court House estimated to cost \$500,000, which was to have been erected in Kansas City, Kansas, and was described in our issue of March 30, will not be built because the officials of Wyandotte County have failed to co-operate with the city officials in providing for the construction of the combined building. Instead, a new City Hall, to cost \$200,000, in which there will be an auditorium seating 4,100 persons, will be built without delay. Plans for this new building have been prepared by Rose and Peterson, architects, and have been accepted by the City Commissioners.

The new City Hall will be four stories in height, not including the basement, which is partially above ground. The



PROPOSED CITY HALL FOR KANSAS CITY, KAN.

auditorium is in the center of the building. The offices of the various city officials are on each side of the auditorium. The auditorium will be managed by the city commissioners and will be used for conventions, large theatrical performances, etc. It is so arranged that the floor can be cleared and the room used for dancing. Police drills also will probably take place there. There is sufficient room on the stage to permit horses to be driven upon it. The stage is so constructed that the city fire department could dash in one door, across the stage, and out the other side. The office part of the building will contain commodious quarters for the city officials, separate jails for men and women, an emergency hospital, and other necessary rooms. It is expected that work will be commenced on the new building within a month.

The City Hall will be built between Armstrong and Ann Avenues, facing on North Sixth Street. This location is but one block from the business center of the city.

NEW BRITAIN WATER WORKS

THE Water Department of New Britain, Conn., has begun placing meters on its services, having spent something over \$600 for meters during 1909; and Mr. P. J. Egan, the clerk of the department, states that it will continue until all services are metered. No meter rate has yet been decided upon, but the department is collecting statistics from other cities with a view of adopting an equitable rate. About 134 miles of pipe was laid during the year and other new work was performed up to a total of more than \$49,000. In addition \$33,000 was paid in interest. In addition to these, \$5,700 was paid in salaries, and other expenses of maintenance brought the total maintenance cost up to \$81,431.21. The receipts for the year ending April 1, 1909, amounted to \$105,854.86 for water rents, and \$5,668.24 for materials, labor, etc. The difference between the total receipts of \$11,523.10 and the maintenance cost of \$81,431.21 shows a profit of a little over \$30,000. The value of the plant is not given in the report received by us, but as bonds are out to the amount of \$825,000 and considerable work has been paid for out of the income, it seems probable that the value of the plant approximates \$1,000,000. If we take interest, depreciation and taxes on this as amounting to 6 per cent. or \$60,000, and deduct from this the \$33,000 paid as interest, we have the difference of \$27,000 to offset the balance of \$30,000 above referred to, and there is in addition the \$49,000 expended on new work to offset a 5 per cent. sinking fund payment. Apparently from this rough calculation the plant is just about paying for itself, which we consider to be the condition every well-managed municipal plant should be in.

CONCRETE WATER TOWER

CARL LEONARD, a Los Angeles, Cal., contractor has just completed a concrete water tower for the Cananea, Yaqui River & Pacific Railroad at Empalme, five miles north of Guaymas, Sonora, Mexico. It is 110 feet high, 30 feet in diameter and has a capacity of 475,000 gallons. It is not an elevated tank, but stands on a heavy reinforced concrete foundation supported on 96 piles. It is open at the top. The tank walls have a



CONCRETE WATER TOWER COMPLETED



CONCRETE WATER TOWER, SHOWING CONSTRUCTION FORMS

thickness of 10 inches at the bottom and taper on the outside to 5 inches at the top. They are reinforced with corrugated and twisted steel. It was waterproofed with Medusa waterproofing and two plaster coats applied on the inside.

The forms used were built in Los Angeles and shipped from there to Empalme. The outside forms were in sections 12 feet high. The inside forms carried the working platform and screws to lift the outside forms.

The concrete was prepared by a gasoline mixer. Five hundred cubic yards of concrete were used mixed 1:2:3 for the reservoir portion and 1:2½:4 for the foundation. The concrete was raised to the point where needed by a gasoline engine. Fifty tons of reinforcements, 859 barrels of cement, 260 cubic yards of sand and 385 of broken stone were used in the tower.

The plans and details were worked out by Mr. H. Eckardt. This water tower was built as an experiment, but the tests made have proved so satisfactory that others of a similar character and even larger capacity will be built along the Harriman lines on the west coast of Mexico.

PUBLIC MARKET AT OMAHA

EIGHT or ten years ago the city of Omaha, Neb., constructed a municipal market house in the lower part of the city. It was generally considered a success for about six months, but its purpose was defeated by organized effort, and the building was closed and used as a storage house until last winter when it was torn down. There is at present a private enterprise known as Market Square, in the commission house district, where stalls are rented by truck gardeners at which they sell their produce, principally to the retail dealers. This information was furnished by City Engineer George W. Craig, in response to inquiry by us.

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JUNE 8, 1910.

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For Improved Specifications

THE city of Buffalo, N. Y., has been stirred up for two or three weeks over an investigation of the new water works extensions, now nearing completion. Major Cassius E. Gillette was employed by the Chamber of Commerce several months ago to investigate the Department of Public Works, especially the expenditures on that work, which will approximate \$3,000,000. Recently he has been "loaned" as a witness to investigation committees, one appointed by the Council and another by the Board of Aldermen. The general tenor of his evidence appears to be that the specifications were faulty, that certain contractors have been favored, and that the work has been conducted in a loose and extravagant manner. Of most general interest to other municipalities is the first item, since very many of the features of the specifications to which he takes excep-

tion are found pretty generally in municipal specifications. The chief of these are the indefiniteness and ambiguity of certain clauses and, to a certain extent, of the plans themselves. While it is possible that Major Gillette goes somewhat to extremes in his insistence upon these points, there can be no question but that a very great improvement might be made along these lines in most specifications.

This indefiniteness may lead to objectionable results of several kinds. As the Major says, "All indefinite specifications tend to limit real competition, and to throw the work to one bidder." This may occur without any collusion on the part of the engineers or other city officials, but merely through the fact that a bidder who has already done considerable work for the city can form some idea as to how the indefinite clauses will be construed by the engineer, while others must protect themselves by making their bids sufficiently high to cover the contingencies of interpretations which would be unfavorable to the contractor. Such clauses also permit of favoring contractors by giving them tips on these points, or permit of graft by agreements between contractors and those representing the city. At the very least, should there be no way in which any contractor can judge beforehand as to what construction will be placed upon these indefinite clauses, all contractors must put in unnecessarily high bids to protect themselves, and thus the city be the loser. Moreover, cautious contractors will refuse altogether to bid when it is uncertain what they may be called upon to perform.

One of the indefinite clauses referred to is the unqualified statement that the material or work must be "satisfactory to the engineer." Another class of indefinite requirements comprises those calling for lump bids on construction of indefinite amount or nature, as of foundations carried down to solid rock, where no borings have been made to indicate what such depths may be; or leaving indefinite the location of certain work, as in the case of the Buffalo intake tower which, it was stated, might be located either inside or outside the breakwater as might be determined later, the cost in the former location being probably very much less than in the latter.

Perhaps in the majority of cases such as these last the engineer is not primarily to blame, being frequently required to prepare plans and advertise the work before he has had sufficient time to thoroughly investigate the conditions existing, to make proper borings, etc., or perhaps without being allowed to spend the money necessary for such investigations. It is no uncommon occurrence to have the City Council, or other body of officials not familiar with the amount of work involved, direct the Engineering Department to prepare plans and estimates and report the same within say two weeks, when the thorough consideration which the subject should receive would occupy at least four or five months; and, having received such hastily prepared plans, to direct the engineer to receive bids on the same after as short a period of advertising as the law permits. We have several times called attention on this page to the desirability of deciding on the next year's work in the fall, thus giving the Engineering Department the winter in which to work up the plans. The too common practice is to make no decision until spring, when the department is already busy with outside field work which has been necessarily deferred until the construction season opened; and then, since that season is already on, urging the engineer to hurry the plans so that the work may be completed before winter closes in.

We would urge City Councils and others who decide upon these matters to seriously consider the importance of such forethought; and municipal engineers to do their part toward impressing this upon those in authority. Given sufficient time, the engineers should not rest satisfied to submit plans for any work which has not received such thorough investigation and consideration that they are in position to prepare not only general but also detail plans so complete and final in every respect that there is little probability of any future necessity or even desire to change them. Then, knowing exactly what is wanted, specify it in terms which can not be misunderstood and which can be enforced; and enforce them.

NEWS OF THE MUNICIPALITIES

Current Subjects of General Interest, Under Consideration by City Councils and Department Heads—Streets, Water Works, Lighting and Sanitary Matters—Police and Fire Items—Government and Finance

ROADS AND PAVEMENTS

State Highway Opened

Colorado Springs, Colo.—The formal opening and dedication of the new Colorado Springs-Canon City State Highway, May 25, by Governor Shafroth, marked an epoch in Colorado's history. It is a wonderful road, this boulevard—wonderful both in construction and the panorama of matchless mountain scenery which it unfolds—and its significance can be appreciated only when it is known that it is the first link in the long chain of inter-city automobile thoroughfares that will connect mountain and plain and some day make the Centennial State as famous and popular among the moneyed classes as Switzerland and France. Elaborate preparations had been made by the Rocky Mountain Highway Association, the State Good Roads Association, the El Paso County Good Roads Association, the Colorado Springs Automobile Club, and similar organizations at Canon City, Florence and Pueblo, for the dedication. In addition to Governor Shafroth, who broke a chain of roses stretched across the road at Deadman's Canon and delivered the dedicatory address, short speeches were made by Charles A. Johnson of Denver, president of the Rocky Mountain Highway Association; State Engineer Comstock of Denver, C. P. Allen, chairman of the State Highway Association; Thomas J. Tynan, warden of the State Penitentiary; Representative Alan Bell of Fremont County, and R. H. Faxon of Pueblo, secretary of the Eighteenth National Irrigation Congress and president of the New Santa Fé Trail Association. After the formal exercises the members of the party, several hundred strong, went to Little Fountain creek, where a basket luncheon was spread in one of the beautiful picnic spots for which that babbling little brook is famous in this part of the State. At 2 o'clock a formal inspection of all of the road that has been completed, particularly that part through Deadman's Canon, was made.

Will Investigate Cost of Paving

Huntington, W. Va.—An investigating committee composed of Floyd S. Chapman, L. A. Pollock and John Coon, of the Board of Commissioners, and Joe Thompson, of the Citizens' Board, left last week in Joe Thompson's machine for Portsmouth, O., from which point they will go to Dayton and Columbus. The object of the tour is to inspect the paving of other cities, the cost, the material and results and to secure specifications everywhere they stop, all of which they hope will be of advantage to Huntington in its expenditure of \$225,000 for paving. The party will pay its own expenses and will be gone three or four days.

Smooth Streets in Sixty Days

Kansas City, Mo.—If promises are worth anything the paved streets of Kansas City will not contain a rut or hole within sixty days. The representatives of the five asphalt paving companies under bond to keep the streets in good repair made promises to the Board of Public Works. But the Board being skeptical caused William Buchholz, the chairman, to issue this ultimatum: "To help you keep the promises you have just made this Board will not let any additional contracts to companies that fail to place their streets in good condition."

Street Work Must Be Advertised

Los Angeles, Cal.—Trustees of incorporated cities must advertise for bids for performing street work, according to a decision handed down by Judge Hervey, when he overruled the demurrer interposed to the complaint filed by A. M. Harter against the Trustees of Redondo Beach. Mr. Harter claims the Trustees let a contract for street work without advertising for bids, and asks that the City Treasurer of Redondo be permanently enjoined from paying for the work. The suit will be threshed out in the Superior Court later.

Cement Tests Made by City Engineer

Grand Forks, N. D.—By tests that are being conducted in the City Engineer's office, exact information as to the quality of cement that is being used by paving contractors is being secured. These tests were formerly conducted at the University in the School of Mines, but the city is now in a position to do its own work, having obtained the necessary equipment. Three different kinds of tests are made on the cement briquettes that are made, being the twenty-four hour test, seven-day test and twenty-eight day test, deriving their names from the length of time from the making to the time of the breaking, when the test is completed. One of the best results obtained so far was in a twenty-four hour test, when the briquette withstood a weight of 250 pounds before breaking, whereas it is only required to withstand 150 pounds. On a seven-day test, the only one completed so far, one briquette withstood a weight of 408 pounds, while another withstood 375. The prescribed minimum is 400 pounds. On a twenty-eight-day test 500 pounds is the minimum. In making the briquettes the seven-day cement blocks are allowed to remain one day in damp air and six days in water, while on the twenty-eight day tests they remain one day in damp air and twenty-seven days in water.

Abutting Property to Pay for Resurfacing

Covington, Ky.—An ordinance for resurfacing of streets and alleys, one-half the cost to be borne by abutting property owners and the other half at the cost of the city at large, has been passed by Council. Heretofore the city has borne the entire cost of resurfacing work.

Using the Streets

Trenton, N. J.—Mayor Madden's veto of the ordinance intended to protect the street pavements by preventing wagons and trucks from driving with one set of wheels on the trolley tracks and the other set just outside the tracks, suggests the advisability of prohibiting absolutely the use of the car track by drivers, except when such use is necessary in passing other vehicles. All of the streets through which the trolley lines pass are smoothly paved and the argument has been repeatedly advanced in favor of paving different streets, that the pavement would make it unnecessary for wagons to use the tracks, and thus would facilitate traffic. Carriages, wagons, trucks and even the automobiles should, it is urged, stick to the asphaltum, wood or brick pavements, and there will be less delay to the cars. Mayor Madden thinks the tendency is to encroach too much upon the rights of the public in the highways; but drivers would be satisfied to use the smooth pavements provided if there were no car tracks in the streets, and the tracks were laid for a special purpose. The vetoed ordinance is, as the Mayor says, "inartistically drawn," but it contains the making of a good regulation.

Would Have Nation Build State Roads

Washington, D. C.—Representative Grant of North Carolina has a most ambitious plan for Government co-operation in road building. He wants Congress to appropriate \$25,000,000, which is to be used in the States which put up equal amounts. It is a plan for the Government to go in, half and half, with States, counties or civil districts on road building. In a bill which the North Carolinian has just presented in the House he provides that the Government's share be disbursed by a body of three Road Commissioners, under a Bureau of Roads, which his bill also creates. The Commissioners are to receive \$4,000 a year. Not all of the \$25,000,000 is to become available at once. Only one-fifth of the sum is to be used the first year, and the same amount each year thereafter until the whole sum is expended. If the scheme works and the States and counties respond a total of \$50,000,000 will be expended in five years for road improvements in the United States.

SEWERAGE AND SANITATION

New Storm Sewer Takes Care of Heavy Rain

Binghamton, N. Y.—A fall of 1.25 inches of rain in two hours and a half, May 25, gave the Main street storm water sewer its first test, and it was satisfactory. Formerly the water would have rushed down Chestnut street, backed up on Main street, overflowing the sidewalks and entering basements, but with the relieved conditions there was no trouble, demonstrating the practicability of the double sewer system.

Sewer Cuts Suburb from City

Chicago, Ill.—Chicago Lawn—a suburb of 6,500 persons in the southwest part of the city—is separated from the rest of Chicago as by a Rocky Mountain canyon on account of the excavations for the South Kedzie avenue sewer. Several days ago the suburb was cut off absolutely from intercourse with the outside world by wagon or street car and only by vigorous action on the part of Alderman James A. Kearns, of whose ward it is a part, was a temporary foot passageway constructed and a roundabout wagon road opened. No ambulances or patrol wagons could have reached the settlement in case of death or riot, and persons leaving it had to clamber around the hills and valleys of the big sewer or wait for occasional Grand Trunk trains. The one remaining artery by which Chicago Lawn can be reached from the city since the sewer on Kedzie avenue was started between West Seventy-first street and the drainage canal, a year ago, is West Sixty-third street. The car track on this street crossing South Kedzie avenue was torn up during darkness and the big sewer machines had started cutting the sixteen-foot ditch.

Disposal of Distillery Waste

Frankfort, Ky.—To consider the best way to dispose of slop from distilleries so that the drainage from cattle pens will not pollute the streams into which the waste matter drains, a meeting of the distillers of the State with the State Board of Health has been arranged, to be held about the middle of July. Dr. John G. South, a member of the State Board of Health, said that the meeting would be held in an effort to reach some agreement by which the pollution of the streams could be stopped without injuring the distillers.

Abolish Drinking Cups in State Buildings

Harrisburg, Pa.—Pennsylvania is at last to recognize officially the campaign of State Commissioner of Health Samuel G. Dixon against the filthy public drinking cup. In the annual schedule for supplies, which has just been issued to prospective bidders, the Board of Public Grounds and Buildings asks proposals for furnishing cup-vending machines and paraffine paper cups, in addition to several thousand other items of varied character. Two varieties of machines are noted in the schedule. One is a public vending machine from which any one athirst can get a sanitary cup for a cent. The other is a similar machine, which will distribute the cups free of cost. The cent-in-the-slot machine is to be installed in the corridors adjacent to the public fountains; the free vending machines are to be placed in the departments for the use of the employees. The cups in each will be of the same make, shaped like an ordinary table tumbler.

City Sewers Overflowed by Storm Water

Hazleton, Pa.—The sewers about the city were in all places taxed to their utmost capacity during a storm last week and in some cases were greatly overtaxed. At the corner of Poplar and Chestnut streets a manhole cover weighing 380 pounds was lifted off the manhole and carried several feet away by the large volume of water that could not be contained in the sewer. Many inlets were blocked and cellars flooded. Complaints have been made about the blockaded inlets, but a majority of them were filled with sand.

Sewer Connections Ordered

Nyack, N. Y.—By a new order put in force by the Board of Health every house in the village must have sewer connection, and failure on the part of property owners will lead to their arrest and a fine of \$100.

Sewerage Work in San Antonio

San Antonio, Tex.—About one hundred men are now engaged in laying sewers where the excavation is light in the Prospect Hill improvement district. Machines for



Courtesy San Antonio Express.

PRELIMINARY WORK DONE WITHOUT MACHINERY

digging trenches will soon arrive, when the work on the deeper sewers will begin. Altogether 12 miles of sewers will be laid with the proceeds of a \$45,000 bond issue. Eight months are allowed for the work. The illustration shows the work on Colima street, where a 22-inch sewer replaces a 10-inch sewer.

Jersey Boroughs to Build Joint Disposal Plant

Madison, N. J.—When the Borough Council holds its next regular meeting an ordinance will be introduced providing for the use of Chatham's proposed disposal plant. An agreement has been reached between the Madison and Chatham authorities whereby each municipality is to bear its apportioned expense of the construction and maintenance of the plant. It had been decided to erect a disposal plant at Spring Garden Brook, in the vicinity of Madison, but this place was objectionable, owing to a fear that conditions would not be sanitary. Under the proposed ordinance the plant is to be located in Chatham Township on the property of Joseph P. Mun. Chatham will share the expense with Madison. Owing to the increased distance of the plant from Madison, the sewerage work and the disposal plant, it is estimated, will cost \$65,000. For three years both towns will advance money on this debt on the basis of population. After that it will be reapportioned and paid on the basis of usage. Although near the Passaic River, the sewage plant will not pollute the stream in the least. The State Board of Health has examined the site and has announced that everything will be perfectly sanitary.

Wants Factories Sanitary

Mohawk, Wis.—Alderman Martin Gorecki has introduced a resolution instructing the City Attorney to draft an ordinance to give the City Health Department more jurisdiction over sanitary conditions of factories. The object is to co-operate more closely with the State authorities.

Cleanest City in California

Pasadena, Cal.—Pasadena is the cleanest and best town in regard to its food supply in California, according to Sanitary Inspector C. F. Huddleston. Pasadena has the best dairies in the country, he says. One dairy in particular has been pronounced by visiting health authorities from Washington, D. C., as the finest dairy in the United States. In this district the tuberculin test is rigidly applied, and once a year every cow supplying milk to Pasadena is tested. Any cow showing signs of tuberculosis is condemned. The owner may be allowed to keep the animal, but he can sell no more of her milk.

WATER SUPPLY

City Sues Water Users

Battle Creek, Mich.—Battle Creek made a sudden entry into the lawsuit business, another innovation of the administration of Mayor John W. Bailey. Twenty-seven suits to collect on broken water contracts were instituted by City Attorney Ware, who states that 100 suits to collect unpaid personal taxes will follow. In their anxiety to get water mains residents on the outskirts have entered into contracts, year by year, to pay a certain amount for four years toward the construction and maintenance of the improvements. With the mains laid their enthusiasm waned. If the 127 suits are successful the city will be several thousand dollars ahead.

Reservoirs and Irrigation

Denver, Col.—A decision of far-reaching importance, affecting every irrigation district in Colorado, has been rendered by State Engineer Charles W. Comstock, and unless the Supreme Court rules otherwise his decision will remain in force. Mr. Comstock has decided in effect that a water right exists and has force for beneficial use at the time when it might be used and that it does not entitle the owner to store the water after he has waived the use of it on the time or times when he might have used it. The case arose over the act of the Beaver Creek Irrigation Company, the promoters of which are C. M. MacNeil and associates of Colorado Springs, in turning into their reservoir water which they might have used for irrigation, but stored instead. They bought a large number of water rights, many of them being very old priorities. The decrees read that the water right was for the use at such time or times as might be needed for irrigation. After they had stored several hundred acre feet the ranchmen below raised a protest and the Division Engineer, E. R. Chew, ordered the reservoir company to desist. They appealed to the State Engineer and he sustained the ruling of the Division Engineer, after a hearing at which all parties were represented. "If every water right owner in the State allowed the amount of water to which he is entitled to run continually into a reservoir it would upset the entire irrigation system of the State," said Mr. Comstock. "There would necessarily be many abandoned farms."

Pure Drinking Water Problem Confronts Dover

Dover, N. H.—Many complaints have been heard about the city in regard to the drinking water, which as soon as hot weather sets in becomes almost unbearable, having a bad taste and disagreeable odor. All during the winter the water has been bad and when boiled assumed a reddish color which did not tend to improve the looks of clothing which was washed in it. The problem of furnishing the city water is becoming more difficult each year, and the Water Commissioners have tried the scheme of boring artesian wells. The water from several springs, including the Kelley spring water, which is of excellent quality, is now being used in sprinkling the streets, and citizens in general are of the opinion that it is a wasteful proceeding to use such pure water for that purpose.

Will Trace the Use or Waste of Water.

Kalamazoo, Mich.—According to a report of Water Commissioner George Houston, only 34 per cent of the water pumped at the water works is paid for by water users. The water works department is a little more than paying operating expenses and interest on its bonds, with no allowance for depreciation. Superintendent Reed says that he cannot account for the great variations in the amount of water pumped from day to day and from hour to hour unless thousands of gallons are wasted or unlawfully used. For example, he said that on Monday morning, May 23, for seven hours the average revolutions of the pumps were 24 per minute, which was an average rate of 2,820,096 gallons for the day. In the afternoon from 2 to 5, the pumps made an average of 16 revolutions per minute, giving a rate of 1,880,064 gallons for the twenty-four hours. "I would like to know exactly what made that average difference of almost a million gallons," said the superintendent. "The day was a rainy one, when there is no lawn sprinkling, and on such days instead of an increase the conditions should be just the reverse."

Water Inquiry Bill Passed

Albany, N. Y.—The Legislature has finally passed Senator Wainwright's bill creating a special water supply commission to investigate conditions in Westchester County, looking to the tapping of the Croton mains. It now goes before the Governor.

Filter Plant Is Near Completion

Burlington, N. J.—The work of constructing the filter plant, adjoining the city water works, is being pushed rapidly to completion. Unless something unforeseen happens the plant will be in full operation by the middle of July to supply the entire city with filtered water. When finished the plant will be able to supply 3,000,000 gallons of filtered water every twenty-four hours, while at present the consumption is not over 1,000,000 daily. Four large filter basins will be installed, each with a capacity of 100,000 gallons. The sedimentation basins will hold 210,000 gallons, while the clear water basin will hold 200,000 gallons. The water will be pumped into the standpipe, which holds 282,500 gallons, by the engines now in use at the water works.

City Council Votes to Reduce the Water Rates

Fargo, N. D.—Acting upon the recommendations of the Mayor, the City Council has voted to reduce the water rates one-third, it being shown that two-thirds of the water is used in private residences and that the Department has been making a yearly profit of \$18,000.

City Liable for Dam Washout

Fergus Falls, Minn.—Judge Taylor has rendered a decision in the case of the City Power Company against the City of Fergus Falls, overruling a demurrer filed by the city. The case is a test one to decide whether the city is liable for the washing out of four private dams as a result of the breaking of the big city electric light dam last September. The dam owners say the city is liable for all damage done, even though there was no negligence in the construction of the city's dam. This contention was based on a decision in a damage suit against the City of Red Wing. That city had built a reservoir on a hill, and the reservoir burst and carried away some buildings. The owners sued, and the Supreme Court held the city was liable, even though no negligence could be shown in the construction of the reservoir. In the present suit the City of Fergus Falls contended a dam was a different proposition from a reservoir, inasmuch as it was located in the river and expressly sanctioned by the statutes of the State. The court holds the city is liable, and unless the Supreme Court should hold otherwise the cases will now go to trial, with the liability of the city established, the question before the juries being the amount of damage each dam owner shall receive.

Without Water Three Hours.

Kansas City, Mo.—For almost three hours one evening Kansas City was without water. A 30-inch main at the Turkey Creek Pumping Station burst at 6.30 o'clock May 24, emptying every main in the city and reducing the water pressure for fire protection to nothing. The complication of pipes and hydraulic valves at the point of the break made it difficult for the water department employees to close the line and permit the operation of the pumps until 9.15 o'clock. At that time the Tod pump of 20 million gallons capacity was started and the pressure in the mains increased to 25 pounds, which was considered sufficient for fire protection under usual conditions. The break was between two safety valves on the northeast corner of the Turkey Creek Pumping Station in a 30-inch main that feeds the business center of the city. The concrete wall above Turkey Creek was damaged by the force of the water. The break caused a stream to rise to the height of the building. The pumps were stopped and the entire water supply of the city was shut off.

Omaha Must Buy Water Works

Omaha, Neb.—The City of Omaha will be required to purchase the water works system of the Omaha Water Works Company for \$6,263,295.49, under a decision of the Supreme Court of the United States at Washington, announced last week. The court affirmed the judgment of the Circuit Court of Appeals in the matter.

Meters to Be Installed in All Houses

Knoxville, Tenn.—The Knoxville Water Commission is endeavoring to put meters in all houses in Knoxville to which new extensions are being made, and also to install meters where the flat rate is now used. Upon investigation of the flat rate, the officials have found in several places a hydrant has been installed in the yards, and that four or five families are using the water from this one hydrant. The Commission has established a low-rate meter service, and believes that by installing a meter service in every house the waste of water can be reduced more than 50 per cent. The Commission has also found that in houses where the flat rate is paid sewer connections have been made and a bath tub installed which are not reported to the Commission and the consumers are only paying for one faucet according to the flat rate, while others are paying the regular meter rate. The Commission will have men inspect every house that has water connection and report their findings as to these changes.

Work Delayed on Los Angeles Aqueduct

Los Angeles, Cal.—One thousand men have been laid off work on the Los Angeles aqueduct and operations have been suspended entirely on three divisions because of lack of money, resulting from a misunderstanding with New York purchasers of aqueduct bonds. The purchasers of the bonds had agreed to take them in yearly allotments of stipulated amounts. It is held by the city that they are \$6,500,000 in arrears, while the purchasing syndicate asserts that it has held strictly to the terms of its contract. Briefly, the difference is over the question as to whether the first payment on the bonds counted only as binding the bargain or constituted one of the annual instalments. Though the delay is but temporary, it means a partial disrupting of the splendid organization which was building the aqueduct under municipal direction. Most of the men laid off had been at the task since it was started, and when the force is restored to its former dimensions these experienced veterans will have to be replaced with novices. More than 5,000 men were at work up to the time 1,000 were laid off. It is believed that returns from bond sales will be forthcoming in time to prevent another decrease of the force.

Seattle Will Spend Million on Water

Seattle, Wash.—A party of surveyors from the City Engineer's office has begun work in the Cedar River watershed in the Cascade Mountains, running lines for the location of a new dam to increase Seattle's water supply. Seattle's drinking water comes from Cedar Lake, and is carried into the city through a pipe line 30 miles long. It is proposed to place the new dam about a mile below the present Cedar River dam, which is at the natural outlet of Cedar Lake. The new dam will be 75 feet high, and will raise Cedar Lake 40 feet, making it 1,590 feet above sea level. The structure will be of either concrete or granite. It will cost in the neighborhood of a million dollars, and will impound sufficient water to supply a city of 3,000,000 people at all times of the year. Impounded water will make it possible to more than double the capacity of the city's light and power plant.

New Water Tower for Town.

Westerly, R. I.—Under the supervision of the Water Works Commissioners of the town a new water tower is being erected on Quarry Hill, a short distance from the present 70-foot stand pipe. The old stand pipe was erected of wrought iron in 1886 and is 30 feet in diameter, with a capacity of 370,000 gallons. The average daily pumpage last July from the driven wells at White Rock exceeded 1,000,000 gallons, or approximately three times the capacity of the tank. The additional service to Watch Hill and Pleasant View has made such a demand upon the storage supply that a new tower was a necessity. Men have been at work for some time on the concrete foundations for the new tower, which is to be 70 feet in height and 40 feet in diameter, with a capacity of 658,000 gallons. The foundation is 10 feet deep and 50 feet in diameter, of solid concrete, which will be the material of which the new tank will be constructed. It is expected that the tank will be built at the rate of 2½ feet a day. The top will be a dome of red tiling and the body of concrete will be painted white. The cost to the town will be about \$25,000.

STREET LIGHTING AND POWER

Big Electric Sign Arouses City Protest

Atlantic City, N. J.—The proposed erection of a gigantic electric sign just beyond the breaker line off the Atlantic City beach, which threatens to interfere with the ocean view, has caused a bitter protest by the Mayor of Atlantic City to the War Department at Washington, based upon the fact that the Department is in charge of the navigable waters of the United States. The Department, however, decided that the location of the sign is not within the waters navigated by anything larger than fishing boats and pleasure yachts, so the only recourse of the people of Atlantic City will be to the State authorities of New Jersey in the exercise of their riparian rights.

Will Pay No More Light Bills

Kansas City, Kan.—As there is just enough money in the light fund to meet outstanding indebtedness, the Commissioners have instructed Richard Higgins, City Counselor, to notify the Consolidated Electric Light and Power Company that the city, in the future, would not be liable for any lighting bill. The Commissioners are prohibited by law from contracting any debt against any fund. A. L. Berger, special attorney for the company, at a recent meeting of the Commissioners, said he did not believe the company would leave the city in darkness.

Ornamental Lighting Expensive

Los Angeles, Cal.—Figures compiled by R. H. Manahan, City Electrician, show that the city faces an immense increase in its street lighting bills by reason of the extension of lighting into new territory and because of proposed extensions of the ornamental street lighting system. For the year ended July 1, 1909, the city's street lighting bill was \$209,000. An increase of 15 per cent is expected to be shown by the figures for the year ended July 1, 1910. For the year 1911, Mr. Manahan figures, 400 new arc lights must be installed to supply newly annexed territory, and the bill for arc lighting alone for that year at the present schedule will be \$243,500. This is not counting any increases in the ornamental street lighting systems. If ornamental lights now contemplated are put in they will cost \$113,000 for the year 1911, Mr. Manahan figures. Under the present system, with \$40,000 expended for ornamental street lights, the city stands one-half of the burden and the property owners the other half. In view of the proposed extensions of boulevard lighting a proposition is now before the Council to cut the city's share of the lighting to one-third. Ornamental lights are now on Main, Spring, Broadway, Hill, Fifth, Fourth and Carr streets. Applications are in for placing them on First, Third, Sixth, Seventh, Pico and Wilshire streets. The city at present pays for 3,200 arc lights. When the new territory is supplied it will pay for 3,600.

Want to Fix Gas Rate at Eighty Cents

Los Angeles, Cal.—A recommendation that 80 cents a thousand cubic feet be fixed as the rate to be charged by the four gas companies for gas furnished in all parts of the city except the San Pedro, Wilmington and Terminal Island districts, where a rate of \$1.35 is to be allowed, has been sent to the Council by the Public Utilities Commission and approved. The high rate at the harbor is because the plant is small and the business in its present condition is not highly profitable. The Board also ventured the opinion in its report that gas can be produced under the favorable conditions existing in the city and sold at a profit on a lower rate than 80 cents, but limited time made it impossible for the Board's engineers to investigate every detail of the industry.

New Lights Turned on at Marengo

Marengo, Ill.—The Marengo Public Service Company turned on the electric lights for the first time last week. much to the joy of the people. For six months or more the streets have been in darkness, but now people are able to get about the city without the use of lanterns. The machinery at the plant is the latest design and the light is of excellent quality. The streets are lighted by fifty 50-candle-power incandescent lamps placed in the most conspicuous places.

FIRE AND POLICE

Two-Platoon Order Because of Strikes

Buffalo, N. Y.—Superintendent Regan has issued an order placing the whole police force on the two-platoon system. This will be maintained until several strikes which took effect during the last two weeks are settled. There has been no disturbance from labor troubles up to this time, but several firms have asked for additional protection in running their plants and Chief Reagan says there is always danger of a sudden outbreak when a number of strikes are on at the same time.

Value to Towns of Fire Departments

Columbia, S. C.—Information as to the value of the Fire Departments of the different towns of the State is being secured by Insurance Commissioner McMaster, for the use of the Insurance Department in enforcing the fireman's pension act, which was passed at the last session of the General Assembly and approved by Governor Ansel. The Insurance Commissioner addressed letters to the Chiefs of the Fire Departments of ninety-five towns of the State, asking for information as to the fire-fighting equipment and the amount invested. A number of replies have been received. From the reports received it is hardly probable that more than twenty towns in the State have fire-fighting equipment worth as much as \$1,000. As provided for by the recent act of the Legislature there is a tax of \$1 on over \$100 worth of premiums collected by the fire insurance companies of the State.

Train Hit Hose Wagon

Elmira, N. Y.—On the way to a fire a hose wagon was struck by a fast passenger train and both horses killed. The firemen escaped serious injury.

Firemen Must Not Sit in Cars if Others Are Standing

Hartford, Conn.—Hereafter firemen in uniform riding on street cars will not occupy seats if other passengers are standing. The order has gone forth in answer to a suggestion by Manager Warren P. Bristol of the local division of the Connecticut Company. Presumably the same request will be made of the Police Department, as policemen and firemen in uniform ride free on the cars.

Hose Runs Short

Jersey City, N. J.—Because there was not a sufficient supply of hose on the second alarm turned in for a fire in a five-story factory on the outskirts of the city, Fire Chief Conway, in order to secure more hose, had to send in a third alarm, even when he was returning steamers to their houses which responded to the second alarm. Every tender in the Fire Department carries 1,000 feet of hose. No tender had enough hose of its own to reach the fire from the nearest plugs—in fact, the nearest they could get was 500 feet away. The damage caused by the fire was over \$100,000.

Novel Police Call

Leavenworth, Kan.—In cases of emergency Chief of Police J. T. Taylor has hit upon the plan of having signals blown by the whistles of several of the factories of the city to call the attention of policemen on duty and at their homes to the fact that they are needed. If the proprietors of these factories will consent to do the work asked, a code of signals will be prepared and given to them. Chief Taylor has addressed a letter to a number of the factory-men in different parts of the city asking them if they will undertake to have the signals blown. There is little doubt that they will, as it is for the benefit and safety of the entire community and will trouble them but very little.

Fire Chiefs Lose Suit Against Louisville

Louisville, Ky.—Ex-Fire Chief Filmore Tyson and other assistant chiefs, who entered suit against the city to place them on the pension roll, after being dismissed through change of city administration, have lost their case, the decision being to the effect that former Chief Tyson and three of four assistants who were ousted last year were not entitled to pensions because they were not disabled during fire service. The fourth assistant chief, J. Unclebach, having been incapacitated, was granted his pension.

Practice Tower Improves Work of Firemen

Denver, Col.—The season for Pompier ladder drills and life-line work by the Denver Fire Department at the practice tower back of City Hall is now at its height, and the keenest rivalry exists among the various companies as to



DENVER FIREMEN PERFORMING
FIRE-FIGHTING FEATS

which can make the best record for the year for time and efficiency. Practice work at the tower, which is one of the model institutions of the kind in the country, is held by the engine companies at 5 o'clock every morning of the week, except Saturday and Sunday. Engine companies attend this drill in rotation, but the schedule is so made up that no district of the city is left unprotected in case of fire. The training tower, five stories in height, is attacked by each company in turn. First a line of hose is carried up the steps to the top floor and water thrown into the bed of Cherry Creek. Next, the line is drawn up by

rope through the center of the tower, where there is a sort of skylight effect. The third piece of work is that of taking the line up a ladder. The truck companies are drilled daily in the work of saving life. Pompier ladders are slender affairs, but built of the strongest material, and are used in scaling high buildings. At one end is a large hook with teeth to catch on window sills or roof gables to prevent slipping. The work of ascent is done by the first fireman placing his ladder, mounting it, and on reaching the top, securing himself with the large hook on the Pompier belt. Then the second fireman lifts the second ladder to him. The first fireman places this in the third story window, mounts it, and the second fireman mounts the first ladder, hands this up, and so on, until the floor wanted is reached. One of the principal life-saving methods known to Fire Department officials is being practised almost daily. This is the stunt by which a loop is formed in the rope, placing the belt-hook within, and by using the right hand, gloved with a heavy mitten, as a brake, the fireman makes the leap from the fifth story to the ground. Instructions are given on methods of rescuing people from windows lower than the one from which the leap is made. When a rescue is to be made the fireman sliding down the line lands on the window sill, seizes the one he is to rescue, loops a second time the life-line and the two slide to the ground. Many of the men are able to slide down the line head foremost. This gives them much confidence and increases their skill as life-savers. Here is the way the leap is made: The fireman takes his stand on the sill of the window he is to jump from, holds himself perfectly rigid and jumps into space as far as he can. He can regulate the speed of the descent by his right hand. Assistant Chief Al Graeber is in active charge of the work.

Engineer's Nozzle Invention Helps Fire Department

Grand Rapids, Mich.—At a test held last week two nozzles, designed by Engineer Frank G. Hill, of the local Fire Department, were tried out under the direction of Assistant Marshal Henry B. Bettinghouse. One, a deck nozzle, will be placed at No. 8 engine house, while the other, a Siamese swivel nozzle, will be on the truck at No. 4 engine house. With the lightest and heaviest engines in the city attached the deck nozzle delivered a stream of 1,450 gallons per minute, while the Siamese did as well. The nozzles were approved by Fire Chief Walker and the Board of Police and Fire Commissioners after the test. The deck nozzle, which would ordinarily have cost about \$475, was made at a total cost of \$100, while on the other about the same per cent was saved.

White Gloves and No Sticks for Traffic Officers

Dayton, O.—White gloves for traffic policemen is an innovation that is being considered by Safety Director Lienesch and Mayor Burkhart. It is probable that the traffic officers of the city will soon be equipped with this form of regalia. The officials are also considering the plan of relieving the traffic officers of their big sticks. Inasmuch as the traffic officers' duties are chiefly of a peaceable nature in guiding pedestrians through the mazes of cars and vehicles, and keeping the avenues of traffic free from congestion, the formidable-looking clubs are considered unnecessary. The white gloves would be more effective in signalling the cars, it is thought, and inasmuch as the officer has the usual pocket arms, he would be well equipped for emergencies.

Pratt's New Fire-Fighting Outfit

Pratt, Kan.—The city has received its new fire-fighting apparatus, a fine hook and ladder wagon with a thirty-five-gallon chemical tank and two ten-gallon tanks, 200 feet chemical hose and 800 feet new fire hose. This makes 1,600 feet of fire hose and with a well-drilled team and company the city is well fixed to fight fire. New fire plugs have been put in all over the city in the water main district.

Auto Engine Big Success

Ventnor, N. J.—City officials of this and Atlantic City and hundreds of cottagers watched the formal trial of the new \$7,500 automobile fire engine just received. Starting with a run through Ventnor and Atlantic City to test the speed of the machine, which is capable of a mile a minute in emergencies, tests were made both at pumping water directly from the thoroughfare and from city plugs. All were highly successful.

GOVERNMENT AND FINANCE**Baton Rouge to Have a City Engineer**

Baton Rouge, La.—It is proposed to change the charter relative to the office of City Engineer, to employ an engineer to give all of his time to this work; to make a provision to meet the new conditions arising from the new contract between the city and the water works company covering sewerage connections; also to make minor offenses triable before the City Judge, and to increase the salary of the City Judge.

Receipts of City Almost Quarter Million

Fort Scott, Kan.—One who thinks that the business of a city of the size of Fort Scott is but little more than that of a corner grocery store has only to make an inspection of the books kept in the office of City Clerk Brown to learn otherwise, as the records there show that during the past year ending April 1 the receipts from all sources amounted to \$242,211.63, while the disbursements amounted to \$236,677.12. Much of the quarter of a million dollars of receipts was for the extensive paving improvements completed over the city during the year, and the amount from this source will be equally large this year, as many large improvements are now under way and others are planned. The bond issue to pay for improvements are included in the receipts and expenditures, being a large portion of it.

Municipal Hall Pays

Iron Mountain, Mich.—This city is finding the erection of its Municipal Hall a wise investment. The building originally cost \$8,000. Now a portion of the structure has been leased to Uncle Sam for postoffice purposes, and for this portion he will pay an annual rental of \$950. The lease runs for ten years. The Government thus will pay a total of \$9,500, or \$1,500 in excess of the cost of the entire building. This is not all, however. There are other remunerative rentals, past, present and future, and the city has ample room in the building for all its needs.

Ordinance for City Purchasing Center

Minneapolis, Minn.—Alderman A. P. Ortquist's ordinance providing for centralization of purchasing power for city departments is being considered by a special Council committee. It provides that the City Clerk shall be custodian of all city supplies; shall receive all orders for supplies, and when goods cost more than \$100 the City Council is to advertise for bids.

Money Needed to Investigate

Kansas City, Mo.—The proposed ordinances by Alderman Frank J. Shinnick to ascertain the physical values of the Metropolitan Street Railway Company and the Kansas City Home Telephone Company properties with the view to future legislation to regulate the rates for service is not to be undertaken by the Public Utilities Commission without the assurance of the financial support of the Council. Both ordinances were returned to the lower house. An accompanying communication from Clyde Taylor, counselor to the Commission, called attention to the need for employment of experts if the reports and findings were to be used as the basis of legislation that would stand the test of court proceedings. Mr. Taylor asked that funds be appropriated to cover the cost of the investigations and expressed the willingness of the Commission to direct the examination, employ experts and provide rules and regulations for their guidance. It is probable that an ordinance authorizing a general investigation of all public service companies will be passed by the Council after the general appropriations for department expenses of the city are made.

Unions to Buy Milwaukee Bonds

Milwaukee, Wis.—Milwaukee will be able to dispose of its city bonds even if the large New York banking houses refuse to handle them. Several of the national unions, including the Bakers, the Brewery Workers and the Western Mine Workers have agreed to purchase large blocks of Milwaukee securities.

Commission Defeated by Decreased Majority

Biloxi, Mass.—For the second time a measure for a commission form of government has been defeated, the election last week showing 316 ballots against the plan to 225 in favor.

McAlester Adopts Commission Plan

McAlester, Okla.—This city has adopted a commission form of government by a vote of 1,200 to 300.

Commission Is Favored for City of Plainfield

Plainfield, N. J.—R. Henry Depew, at the annual meeting of the Plainfield Protective Association, said in his report as president of the body that a radical change in the administrative affairs of the city is imperative, and suggested that the commission form of government, which was first established in Galveston immediately after the flood, be inaugurated here.

Municipal Research Costs Money

St. Paul, Minn.—Only \$1,800 is needed to complete the \$5,000 deemed necessary for the work of the municipal research commission. The members of the commission have some very definite ideas as to what they expect to accomplish and why \$5,000 is necessary.

Uniform Laws to Control Cities

Seattle, Wash.—Uniform laws to govern cities of the first, second and third classes, and a revision of State laws so that there will be no conflict between statutes and charters, is proposed by City Comptroller William J. Bothwell, of Seattle, who has addressed letters to the Comptrollers and Clerks of the various municipalities in Washington asking for an opinion on the subject and suggesting that a convention be held in Seattle this year in order to formulate some plan to be presented to the Legislature next January. "In going over the State laws and the Seattle charter," Mr. Bothwell said, "I find that there is a great difference. A State convention of the officials of such municipalities will, in my opinion, result in formulating a uniform government for all and do away with conflicting State statutes."

Spokane to Vote on Commission Form

Spokane, Wash.—Containing over 1,500 more names than are required to make the election of fifteen freeholders to revise the city charter mandatory, the big petition of the commission form of government campaign committee has been filed with the City Clerk. This assures the drawing up of a new charter for the city under the commission plan within a few weeks.

STREET CLEANING AND REFUSE DISPOSAL

Garbage and Ashes Removed at Night

Hoboken, N. J.—Secretary Rudolph Schroeder, of the Board of Trade, appeared before the committee of the whole of the Hoboken Common Council last week and urged that in future ashes and garbage be removed at night, if that plan is feasible. The matter will receive the careful consideration of Council.

City Responsible for Garbage Collector's Acts

Louisville, Ky.—An opinion handed down by Judge Walter P. Lincoln is of far-reaching effect and in it the court holds that the collection of ashes and garbage by the city cannot be regarded under the law as a governmental function. In other words, the city is liable for the acts of its ash and garbage collectors, although it is immune in case of negligence on the part of many others of its employees. The ruling was the overruling of the city's demurrer to a suit for damages filed by Maggie Pendergast against the city. She complains that an ash wagon driver carelessly slammed her alley gate against her, knocking her down and causing severe injuries. The city pleaded that it was performing a governmental function in going for the ashes, but the plaintiff's attorney, J. J. Kavanaugh, contended that it was only performing a purely local and corporate act. This view of the case was sustained by the Court.

Entire Street Department Laid Off by Mayor

Muskogee, Okla.—Mayor McGarr has issued an order suspending the entire Department under Street Commissioner Gaither. The order is a result of an investigation of Mr. Gaither's office. Expert Accountant Nyhart reported that no books of the expenditures had been kept and it was impossible for him to check up Gaither's accounts. The action of the Mayor lays off nearly fifty men and a dozen teams. Hereafter, if the Mayor's plan is followed out, the work of cleaning and sprinkling the streets will be let by contract to the lowest bidder. Mr. Gaither will be kept on the city payroll, although he will be shorn of nearly all of his power. His chief duty in the future will be the serving of papers for the city.

New York Street Cleaning Parade

New York, N. Y.—The New York Street Cleaning Department, 4,500 strong, with its shining equipment of carts, plows, flushers, sweepers and miscellaneous appliances, held its annual parade June 3. Mayor Gaynor, Street Cleaning Commissioner Edwards and other city officials reviewed the parade from a stand at the Worth monument in Madison Square. The silver cup given to the borough making the best appearance was awarded to the Bronx division. An interesting feature of the parade was the Juvenile Street Cleaning League of the Bronx, including some 300 members, boys from the public schools 9 to 12 years old.

Street Cleaners Interfered With

Portland, Ore.—Superintendent Donaldson, of the Street Cleaning Department of the city, declared recently that he was going to cause the arrest of numerous automobile owners if they did not cease interfering with the flushing of the streets at night. He has his street-flushing device operating each night on the downtown streets and it is working successfully, but the operators of the flushers have been having much trouble with automobiles.

No City Wagons to Haul Off the Trash

Tacoma, Wash.—Persons who responded to ex-Mayor John W. Linck's proclamation urging all to clean up their premises and pile the rubbish in convenient spots so that city wagons could haul it away say they have a grievance. The Mayor promised them the city wagons would haul their trash away free of charge. Tons and tons of rubbish of all description was gathered together and placed on front parking strips to await the arrival of the city's dump carts. Some carts arrived, but in most cases there were no conveyances. The trash remained where it was first deposited, property owners waiting for the new administration to order the street department to remove it. But the new administration will do nothing but compel property owners to take care of the rubbish at their own expense.

RAPID TRANSIT

Proposed Interurban Route from Boston East

Boston, Mass.—One of the projects for improving the transportation facilities of Boston and the populous territory to the eastward now before the Massachusetts Legislature is a bill to allow the Boston & Eastern Electric Railroad Company to construct a tunnel under Boston Harbor from some convenient point in East Boston to Post Office Square in Boston proper. This new line would start with a tunnel opening on Post Office Square, running under the harbor without any interference with any other tunnel existing or proposed, emerging in East Boston and continuing to Beverly, with a branch line between Salem and Danvers. This high-speed electric road, running not on streets but on a right of way, is something new. It exists in the West, but not as yet here. The promoters promise to deliver a Beverly resident in the heart of the city in Post Office Square in 23 minutes and a passenger from Lynn to Post Office Square in 14 minutes.

New Traction Agreement Prepared

Newark, N. J.—An ordinance intended to settle permanently the method of computing the city's 5 per cent of the gross receipts from passenger traffic on the street car lines has been drawn up. Car mileage will be adopted as the basis of computing the city's share of the receipts. The ordinance also contains provisions relating to the territorial limits of the 5 per cent agreement, existing franchises, the transfer system and other matters. The 5 per cent payment will extend to all the present limits of Newark and to all future annexations. One section provides that the company shall not be required to issue transfers to parallel lines. School tickets, 33 for \$1, will be issued.

Metropolitan Pays Franchise Taxes

New York, N. Y.—With the opening of the extraordinary term of the Supreme Court, established by the Appellate Division for the trial of the suits brought by the city against transportation, telegraph, telephone, gas, electric light and other public service corporations for the collection of special franchise taxes which had been unpaid for nine years up to Jan. 1, 1909, it was announced that the suit against the Metropolitan Street Railway, exclusive of the Second and Third Avenue Lines, had been settled, and that the only cases remaining were against the New York Central and the Manhattan Elevated. By the settlement of the case just disposed of, over \$20,000,000 in taxes has been paid or will be paid soon into the city treasury, and the total amount sued for was only about \$3,000,000 more.

Want Car Steps Lowered

Syracuse, N. Y.—The Council of Women's Clubs is making an effort to have the entrance steps on the street cars lowered. The matter has been taken up with John E. Duffy and it is hoped that this reform can be brought about. The women of Chicago have recently been successful in a similar effort. The method adopted by the street railway company in that city was the changing of the steps on each car when it was sent to the repair shop for any reason.

Street Car Ordinance Adopted by Topeka

Topeka, Kan.—The famous street car ordinance fought over by the old City Council was dug out and passed by the City Commissioners last week. The ordinance makes it a misdemeanor for the street railway to violate any of the sections of the franchise and will be a final decision on the continual trouble between the city and the railway over certain sections of the franchise. The hauling of freight cars through the streets, the removal of unused tracks, the duties of conductors in calling out streets, the paving, excavation and cleaning of the right of way, and several other valuable sections are included.

Dazzling Headlights Banned

Washington, D. C.—Dazzling headlights on the cars of the City & Suburban Railroad will not be used within the city limits in the future, according to the information given the Commissioners by the police. A complaint was made by a man who does considerable driving by night along the line of this railway. He called attention to a police regulation prohibiting dazzling headlights. A police court case was made up and the railway company has been given time to arrange other headlight devices.

MISCELLANEOUS

Glass-Covered Stands for City Market

Indianapolis, Ind.—The Board of Health is considering the question of requiring stand holders in the meat market of the city market house to install glass-covered stands provided with ice or some other method of refrigeration. The Board of Public Works recently declined to install uniform cases and a refrigerator system at the expense of the city. An ordinance passed in 1907, but never put into operation, stipulated that stand holders shall have glass-covered stands equipped with ice or other refrigeration. Before taking action to enforce the ordinance, the Board will confer with the butchers and try to arrive at some mutual agreement. It is possible that the butchers will install stands and obtain refrigeration from a cold storage company.

Receipts from Market Stalls

Denver, Col.—The recent auction of stalls at the City Market brought \$1,373.75 as the first month's rental from those contracting for them. Most of the stalls are rented for about six months of the year. There were 238 stalls put up at auction by the Market Master, the average price realized being \$5.68 per month. This average is the best price the city has ever received from the stalls.

Muzzling Canines

Kalamazoo, Mich.—Mayor Charles H. Farrell has issued a proclamation ordering that all dogs be securely muzzled until further notice, on account of findings of a Pasteur expert in cases of a number of canines.

Louisville, Ky.—The Mayor has been urged to promulgate a dog-muzzling ordinance to be effective during the summer months, as a number of citizens have been bitten by dogs suffering with rabies.

Springfield, O.—Following a resolution adopted by the Board of Health, Mayor Bowlus has issued a proclamation calling upon the citizens to muzzle all dogs.

Dayton to Change Street Names

Dayton, O.—Council is having prepared a report on street names by which it is intended to rename some of those thoroughfares whose cognomens are duplicated.

New Street Signs and Number System

Springfield, O.—The first shipment of the new street signs recently ordered by the Board of Control, arrived here last week, consigned to the contractor, A. E. Jones, and men have begun putting them in place in the east end of the city. The new signs are of pressed steel, practically indestructible, with names of the respective thoroughfares displayed in white letters on a dark blue enameled surface. The plates are four inches wide, the length differing according to the names of streets and avenues. By calculating 100 house numbers to the block, east and west from Fountain avenue, or north and south from Main street, it should now be comparatively easy for any person to find the way to a designated locality without difficulty.

Henderson Makes Bid for New Factories

Henderson, Ky.—The City Council passed an ordinance last week granting free electric lights and free water for steam and drinking purposes to new manufacturing plants locating here. This free grant is made to such manufacturing plants for a period of five years, and is made to no factory working less than ten employees.

Mayor for Sunday Games

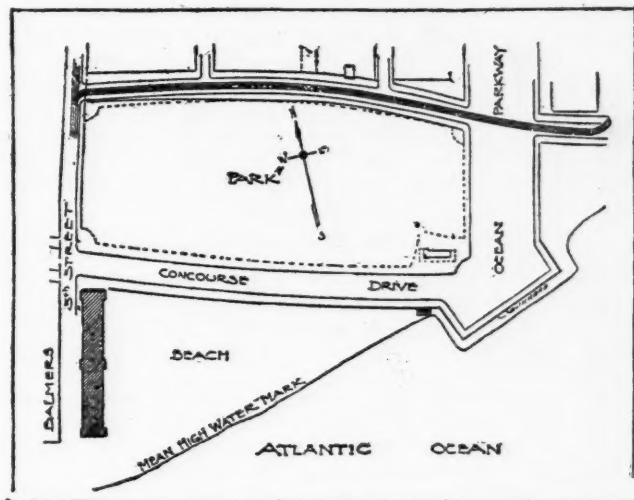
Boston, Mass.—Mayor John F. Fitzgerald announces that he will go before the Legislature next year to advocate a revision of the statutes to allow amateur baseball, golf and other games on Sundays in this city. The Mayor said he would like to present such a petition this year, but feels it would be impossible to get consideration so late. The Mayor has called upon Dr. Thomas F. Harrington, Director of School Hygiene, to open on Saturday afternoons all the playgrounds controlled by the School Department. At present the playgrounds under the jurisdiction of the School Department are closed at noon Saturdays.

Free Theaters as Well as Free Baths

Mexico City, Mexico.—Free wash tubs, free baths and a barber who will give his services gratis to those who cannot pay are among the strikingly novel features of the plans for keeping the poorer classes neat and clean during next September, when Mexico will celebrate the one hundredth anniversary of her independence. Governor Guillermo de Landay Escandon, who is chief executive of the Federal District of this country, is the official who has ordered free baths and a free barber. Governor Landay is considered a great friend of the poor people of this country. It was he who first organized the uplift movement, and spent thousands of dollars to help elevate the working people of the Federal District. He rented theaters so that the poor might attend moving-picture shows. Between the pictures he and his friends delivered lectures. Now he will establish free night schools. His plans include a huge park, where the workingmen and their families can go every Sunday afternoon and enjoy amusement free of all cost.

Municipal Baths at Coney Island

New York, N. Y.—By voting an appropriation of \$175,000 the Board of Aldermen finally makes a certainty the erection of a free bathing pavilion at Coney Island. Plans have already been drawn for the structure, which, as shown in the diagram, will immediately adjoin the private bathing



LOCATION OF MUNICIPAL BATHS AT CONEY ISLAND

establishments and occupy only a small portion of the beach front which is now open. Bids for the work will be awarded shortly, so that the houses can be opened to the public the latter part of the summer. A committee secured ideas for the bathing house from the municipal baths conducted by the City of Boston, Mass., at Revere Beach.

War on Philadelphia's Noisy Hucksters

Philadelphia, Pa.—The police have been directed by Assistant Superintendent of Police O'Leary to arrest all hucksters who arouse certain neighborhoods by going up and down back alleys at early hours in the morning shouting their wares in their loudest and harshest tones. The police have been deluged with complaints from every section of the city and a crusade will be begun against the hucksters.

Puts Twenty-eight Men on Boy Commission

Spokane, Wash.—Every phase of the "boy problem" in Spokane, what it needs in the way of legislation and how the youth can be educated to the highest citizenship, involving the suppression of the social evil and a full study of juvenile crime, its causes and prevention, and many other things will be fully investigated and reported upon by a commission of twenty-eight prominent citizens and representatives of different local institutions appointed by Mayor N. S. Pratt. The Mayor named the commission after pressure had been brought on him from many sources asking that something be done in the way of gathering statistics and data on the "boy problem."

LEGAL NEWS

A Summary and Notes of Recent Decisions—Rulings of Interest to Municipalities

Legislative Control of Improvements—Alternative Bills

Schieffelin vs. City of New York et al.—To warrant the restraining of a contemplated act of a city official, the doing or threatened doing of an illegal act must be shown, as courts will not interfere merely to substitute their judgment or discretion for that of the municipal officers whose duty it is to perform an act the propriety of which is questioned. Laws 1907, chapter 670, authorizing the erection of a municipal building at the Manhattan terminal of the New York and Brooklyn Bridge, and removing from the control of the Borough President of Manhattan, who, under the charter, would have been in control of the work, all supervision over the construction of the building and transferring it to the Commissioner of Bridges, who shall act with the approval of the Board of Estimate and Apportionment, under which the exercise of the Board of Estimate and Apportionment of their power, by preparing and approving plans, would deprive the Superintendent of Buildings of further jurisdiction, is a valid exercise of legislative power. A contract of a municipal corporation requiring bids for work, whereby either of two materials could be used, was not illegal as calling for alternative bids, where the bids called for were not to contain a single price for furnishing either material, the choice to be left to some other person, but separate estimates of costs for each of the two classes of work. Before a plaintiff in a taxpayer's action can be given relief by injunction against the acts of an official, it must appear that such acts are without power, or that collusion, fraud or bad faith, amounting to fraud, exists.—Supreme Court of New York, 122 N. Y. S., 502.

Water Company—Right to Cut Ice

People ex rel. Goff vs. Kirk, Sheriff.—Where a company is incorporated to furnish pure water to a municipality, cutting and storing ice from its reservoir are within its corporate powers. A rule of the State Commissioner of Health that a water supply company shall not use its reservoir to supply ice for public or private purposes, and that teams or men shall not cut and remove and store ice in winter, is oppressive and seeks to deprive one to whom the company has given the right of his property without compensation.—Supreme Court of New York, 122 N. Y. S., 604.

Election Contests—Opening of Ballot Boxes

In re Ulrich et al.—Election Law, section 374, provides that each ballot box shall be locked and preserved inviolate for six months after election "and may be opened and their contents examined upon the order of the Supreme Court or a justice thereof or a county judge of such county." Held, that an order to open a ballot box will not be issued on a petition alleging that the inspectors were careless, and that the petitioners believe a wrong result of the election was announced, but such order will only be issued in aid of a judicial proceeding.—Supreme Court of New York, 122 N. Y. S., 601.

Consolidation of Cities—Bonds

City of Ensley et al. vs. Simpson.—Even if the merger of a city which had issued bonds under an agreement to levy a tax for a sinking fund for the payment of interest on the bonds into another city, destroyed the security of the bonds, on the ground that the general credit of the larger city was not a substantial equivalent for the security contracted for, the legal obligation remained unimpaired and a remedy for the diversion of funds impairing the security may be had on proper application.—Supreme Court of Alabama, 52 S. E. R., 62.

Contracts for Refuse Removal

Van Iderstine vs. Department of Health of City of New York.—Under New York City Charter (Laws 1901, chapter 466), sections 1205, 1206, the Board of Health is vested with discretion in awarding contracts for the removal of refuse, which is not controlled by section 419.—Supreme Court of New York, 122 N. Y. S., 468.

Public Improvements—Damages—Report of Commissioners

Johns vs. Village of Salamanca et al.; Hoy vs. Same.—Where the report of a second commission, appointed to award damages for change of grade of a street, awards only about half the amount claimed by claimants' witnesses, and the amount awarded as rental damages is below the computed amounts based on the actual receipts for rentals prior to the change of grade, and the award by the second commission is a substantial reduction from the award made by the first commission, and one claimant without the knowledge of the attorneys for the claimants or the defendants delivered a paper to each of the commissioners in which he made extravagant and unjust charges against defendant's witnesses and attorneys, the report of the commission will not be set aside, although the amounts allowed are twice the amounts stated by defendants' witnesses; two of the commissioners not having read the paper given them, and it not appearing that the third commissioner read it.—Supreme Court of New York, 122 N. Y. S., 488.

Waters and Water Courses—Change of Channel

State vs. Barker.—Where a public stream, abounding in fish valuable for food, flowed across defendant's premises, he was entitled to change the course of the stream over such premises and construct fish ponds in the old bed, without injury to public or private interests, or interfering with the fish in the stream, permitting the water diverted to his fish ponds and hatchery to run undiminished and unpolluted back into the stream.—Supreme Court of Utah, 108 P. R., 352.

Animals at Large—Construction of Statute

Best vs. Broadhead.—Under the provisions of subdivision 15 of section 15 of an act of the Legislature providing for the organization, government and powers of cities and villages, the cities and villages of the State have power and authority to pass ordinances to prevent the running at large of horses within corporate limits. Held, that the phrase "other animals," as used in said section, is broad enough to, and does, include horses and all other animals.—Supreme Court of Idaho, 108 P. R., 333.

Removal of Police or Firemen

Craig vs. Superior Court of San Joaquin County et al.—Under Constitution, relating to the terms of office of any officer or commissioner, which was amended on November 6, 1906, by adding the proviso that, in case of any officer or employee of any municipality governed under a legally adopted charter, the provisions of such charter with reference to the term of office or dismissal of such officer shall control, where the provisions of a freeholders' charter provide for the removal of municipal officers by the municipal authorities, the Superior Court has no jurisdiction to remove such officers under Penal Code, providing for the removal of civil officers, otherwise than by impeachment for certain misdemeanors. Held, that the charter provisions contemplated that the Police and Fire Commissioners should have exclusive authority to dismiss members of the Police and Fire Departments pursuant to such provisions, so that the Superior Court had no jurisdiction of proceedings to remove a policeman of the city of Stockton under Penal Code, providing for the removal of civil officers for certain misdemeanors in office. Rehearing denied.—Supreme Court of California, 108 P. R., 310.

Changing Grade of Street—Damages

Kavan et al. vs. City of South Omaha.—Under the provisions of the South Omaha city charter, a lot owner is entitled to recover the damages occasioned by the grading of a street in such a manner as to lower it many feet below the natural surface of his lot; and in estimating the amount of his recovery, special benefits to the property by reason of the improvement, if any, should be set off against the damages he has sustained thereby.—Supreme Court of Nebraska, 126 N. W. R., 77.

Tax Exemption—Power of Municipality

Tarver vs. Mayor, etc., of City of Dalton et al.—A municipality cannot exempt from taxation property which does not belong to any of the classes which the Constitution of this State permits to be exempted.—Supreme Court of Georgia, 67 S. E. R., 929.

NEWS OF THE SOCIETIES

New England Conference on Street Cleaning.—The first New England conference on street cleaning and refuse removal is to be held in Providence, R. I., in Manning Hall, Brown University, on June 29. The purpose of the conference is to bring together Mayors, Commissioners of Public Works, Street Cleaning Superintendents, Councilmen and social workers and give them an opportunity to discuss the street cleaning problems not only as a technical process but in their relation to the preparation of budgets, appropriations, efficiency of service, co-operation with private and public agencies, the possibilities for organized co-operation with school children and the relation of street cleaning to health. Among those who have been secured as speakers are Commissioner William H. Edwards, of the Street Cleaning Department of New York; Dr. George A. Soper, president of the Metropolitan Sewerage Commission, Boston, Mass.; E. T. Hartman, secretary of the Massachusetts Civic League; Guy C. Emerson, Street Superintendent of Boston; J. T. Fetherston, Superintendent of Streets of the Borough of Richmond, N. Y., and other men especially prepared to handle their respective subjects. The following are among some of the subjects that will be discussed:

The organization of an efficient street cleaning department.

The preparation of a street cleaning department budget.

Modern methods of street cleaning.

How New York is solving its street cleaning problem.

The social significance of clean streets.

Bacteriology of street dust.

Street cleaning and tuberculosis.

Co-operation between street cleaning departments and municipal and private agencies.

School children and clean streets.

Part of the afternoon of June 29 will be devoted to demonstration of work done with modern street cleaning appliances. The conference is being organized by the Bureau of Social Research of Providence under the direction of Carol Aronvici, who will forward information concerning the conference.

Locust Street Improvement Association.—James L. Darnell, City Engineer of Kansas City, Mo., discussed plans for traffic way connections with the new Missouri River Bridge on the old Winner Piers at the meeting at the Densmore Hotel May 26. The property owners between Grand and Troost avenues are interested in diverting the traffic from the bridge to that section of the city and grades, with possible improvement schemes for McGee, Oak and Locust streets were presented to the association by Mr. Darnell.

West New York (N. J.) Civic Society.—The first banquet was held May 25 at the Villa Robinson, Hudson Heights. About 200 members and guests were present. Frederick C. Sutor, president of the society, spoke at considerable length on the "Principle of Self-Government." Other speakers and their subjects were: Assemblyman Mark A. Sullivan, Town Attorney, "State and Municipal Reform"; Rev. Joseph Reis, "True American Citizenship"; A. J. Demarest, of Hoboken, "Education and Nations"; Mayor R. Miller, "Town Affairs," and John O'Toole, Newark, "Transportation."

Health Officers of Indiana.—Preventive medicine was the chief topic up for consideration by the County and City Health Officers of the State, in conference with the State Board of Health, at the Claypool Hotel, Indianapolis, May 24. The topic was introduced by Dr. George T. McCoy, of Columbus, president of the State Board, in his opening address; was emphasized by Dr. J. P. Simonds, head of the Pathological Laboratory of the State Board, in a talk on "Laboratories in Public Health Work," and also in a paper read by Dr. T. Henry Davis, of Richmond, a member of the State Board. The morning discussion on the subject was concluded by an informal talk by Dr. J. N. Hurty, secretary of the State Board, in a half hour given to instructing the Health Officers how to apply preventive medicine theories. Governor Marshall talked for a short time, urging the officials to work in hearty co-operation with the State Board of Health. In that way, he said, they would be able to accomplish the most good. He commended them for their efforts toward establishing the reign of preventive medicine, and told them they belonged to the very necessary class of citizens who place the public welfare above thought of personal gain. A number of the delegates also spoke and a resolution was passed memorializing Congress in favor of the establishment of a National Health Department.

Ohio Health Officials.—The State Board of Health will hold a conference in Cleveland June 30 and July 1 with the local Health Boards of northern Ohio. These meetings with the Boards of the different parts of the State are held each year and at different cities. They have been found to be very helpful.

Jackson County Medical Association.—The proper disposal of the city's sewage and refuse is receiving the attention of the association at its meetings at Kansas City, Mo. The discussion will be in the form of papers by Dr. George Halley. The first was read at a meeting at the general hospital May 24. Another was given Tuesday night, May 31, and the third is scheduled for June 14.

Arkansas Valley Society of Arts and Sciences.—"Filtration Plants" was the subject for discussion at a largely attended and very interesting meeting held in the B. M. A. rooms, Pueblo, Col., May 21. R. F. Proctor, engineer for the Brown-DeWeese irrigation project, and C. A. Wentworth, C. E., who has had wide experience with the installation and management of filtration plants, delivered the principal addresses, which were followed by a general discussion. Chairman T. J. Downen and the members of the Water Committee of twenty-five were present as guests of the society, and obtained much information in regard to the various methods of filtering water in large quantities. Many speakers advocated filtration of the Arkansas River water as one method of improving the water supply of Pueblo.

Georgia Federation of Road Authorities.—A meeting was held at the Court House in Savannah at 10 o'clock a. m., June 8, 1910. The executive committee had arranged a very interesting and entertaining programme for the meeting, which was attended by at least one delegate from each county. The County Commissioners of Chatham County took the delegates over the roads of Chatham County and entertained them.

Mayors of Kansas.—A conference of Mayors, City Engineers and other city officials was held in Marvin Hall of the University of Kansas, Lawrence, May 26, for the discussion of the problems of sanitary engineering. F. O. Marvin, Dean of the Kansas University Engineering School, presided. The subjects of sewage disposal by the septic tank system and for the purification of wastes to prevent pollution of streams were discussed. A committee of five was appointed to collect further information and report to a future meeting of city officials. Dean Marvin was made permanent chairman of the investigation. The following were present at the meeting: Dr. G. C. Glynn, Commissioner of Public Utilities, Iola; Mayor F. M. Hartley, C. W. Holliday, Superintendent of Water Works; H. E. Downs, Baldwin; H. F. Graham, Holton; Mayor Dunkelberger, of Newton; Mayor Kenneth, of Concordia; Mayor Highbargin, of Eureka; Mayor Grimes, of Hiawatha; Mayor W. G. Kelly, of Horton, and Mayor O. C. Brett, of Humboldt; C. C. Huntington, Eureka; Henry Plumb, Pleasanton; W. E. Archer, Horton; W. A. Lawler, Emporia; Frank McCain, Emporia; William Constant, Marion; G. E. Johnson, Sabetha; E. B. Black, Kansas City, Mo.; John Worley, Kansas City, Mo.; Prof. F. O. Marvin, Prof. W. C. Hoad, Prof. B. J. Dalton, Prof. H. A. Rice, Prof. F. N. Raymond and Prof. Harry Gardner, of the University of Kansas faculty.

Connecticut Mayors' Association.—When the Mayors of Connecticut meet at Meriden early in June Mayor Thomas L. Reilly proposes to take them to places worth seeing and will use automobiles. Some of the places of interest to be visited are the International Silver Company's warerooms, City Hall, Curtis Library, State School for Boys, Hubbard and Brookside Parks, Bradley & Hubbard Company's show rooms. If the new motor fire engine is in commission the visiting officials will see the machine in operation.

California Supervisors.—The members of Boards of Supervisors of the State held a three days' State convention at Stockton, May 20-22, the principal discussion centering about the construction and maintenance of public highways, the largest problem that confronts the Supervisors to-day. San Joaquin County is constructing 238 miles of permanent highways, bonds having been voted for this in the sum of \$1,890,000, and the extensive construction of roads about Stockton on various kinds of soils, under the supervision of the Highway Commission, was explained at length. The Supervisors also inspected the roads with a view of securing data and practical ideas on road building. Many of the counties propose improving their highways. Addresses on the construction and maintenance of highways were delivered by State Engineer Nat Ellery, Supervisor Jasper Patrick, of Napa; Supervisor J. A. Linscott, of Watsonville; County Surveyor F. E. Quail, of Stockton, and Highway Commissioner Burton A. Towne, of Lodi. The visitors were also taken down the San Joaquin River to view the reclamation and irrigation work. The forenoons and a portion of the afternoons were devoted to business sections. A. L. Hubbard, of San José, was permanent chairman of the convention, and Eugene D. Graham, County Clerk of San Joaquin, secretary.

National Electric Light Association.

Over 2,600 members attended the thirty-third convention, held at St. Louis, Mo., May 23-27, when forty-four formal papers were read, sixteen section committee reports and three addresses were made. Owing to the length of the program, the discussion was brief. Three simultaneous sessions were in order at all times, and one afternoon there were meetings of the Company Section, Technical Section, Commercial Section and Class D members. In connection with the convention there was held a costly exposition at the Coliseum Hall, which showed in chronological form the progress made in electrical lighting and in the utilization of electrical power since the first electric light plant was established in Appleton, Wis., in 1882. Now, according to the statement of Frank W. Frueauff, president of the association, in his annual address, there are about 6,000 central electric lighting stations in the United States alone. More than one-half of these companies are also engaged in the electrical supply business. The central station companies of the country have an investment of \$1,250,000,000. They have a gross income of more than \$250,000,000 a year and develop nearly 2,500,000 horsepower.

President Frueauff, in reviewing the growth of the association, said: "America has made greater strides in the development of electricity than any of the other countries of the globe. We have developed," he said, "from what once appeared to be a matter of choice on the part of the buying public to the point where we are supplying a vital necessity and must be governed in it by a fixed duty to the public, which they can enforce by law if not lived up to by ourselves voluntarily. The constant downward trend in the rates charged for electric service is something that we are entitled to place squarely before the public. Our service is the one cheaper thing enjoyed by the public in these days of the high cost of living. With electricity as the agent, irrigation has been made possible, pumping has proven a success and once unproductive land thus fertilized has made the farmers of the country the richest class of all our American citizens."

W. A. Durgin, of Chicago, read a paper on "The Location of Faults in Underground Cables," commenting on the characteristics of the various tests in vogue for locating the many troubles that underground distribution systems are heir to, and said that by the use of this system of testing from 80 to 95 per cent of all grounds will be correctly located, and thus a great saving of time effected as compared to the usual cut-and-try method.

In a paper entitled "Departures from Standard Practice in Distribution Methods," S. B. Way, of the Union Light and Power Company, St. Louis, described a number of interesting details in the construction and design of electric distribution systems in St. Louis. The monolithic conduit system, which was originated in St. Louis, was described, and results show that it has been fairly satisfactory. Among the advantages claimed by the author for this type of construction are: Low first cost; smooth, straight, well-drained ducts free from joints, blisters and sharp projections; great fire resisting ability and adequate protection of working cables from each other. The overhead lines also embody numerous departures from standard practice. All

poles are provided with a ring of well-tamped concrete at the ground line, the top surface being raised above the ground and sloping away from the pole, so as to form a watershed. All fixtures on the cross-arms, such as insulator pins, braces, guys, etc., are fastened by means of clamps, which practice has the following advantages: It avoids weakening of the arm by boring holes, affords less chance for moisture to collect, binds the fibers together, thus tending to prevent cracking, splitting, etc., and it also affords a more substantial support for the fixtures. Mr. Way also described various appliances and fixtures which have been specially designed for use on these lines.

In a report on the preservative treatment of poles and cross-arms submitted by a committee, of which W. H. Vanderpoel, of the New Jersey Public Service Corporation, was chairman, it was estimated that there are required for pole renewals between 500,000 and 600,000 poles per year, and that during the next ten years this number will be increased to in the neighborhood of 900,000 or 1,000,000. As a result of direct inquiry to a large number of transmission companies, the life of various timbers when used for transmission poles was given as follows: Cedar, 13½ years; chestnut, 12 years; cypress, 9 years; pine, 6½ years, and juniper, 8½ years. The committee recommends the seasoning and in most cases preservative treatment of wood, and claimed that a well-seasoned untreated pole will last at least 30 per cent longer than an untreated green pole.

E. L. Elliott, of New York, in a paper entitled "Decorative Street Lighting," called attention to the opportunities this form of lighting offers to central stations. Such lighting should include a city sign with some striking motto or slogan. He said that street arches are hopelessly ugly and out of place by day, and that if festoons of lamps must be used, it is far better to run them parallel with the curb than from post to post. The use of wooden posts and cheap construction should also, he said, be discouraged.

The committee on meters, G. A. Sawin, New Jersey Public Service Corporation, chairman, submitted a report containing a draft of a "Meter Code," and also treated, without interconnection, of the following subjects: Necessity to maintain accuracy; new forms of meters; devices for meter installation, in which are described and illustrated various devices to facilitate the installation, testing and replacement of meters, and to make them proof against theft of energy, views of some meter equipments and an instruction sheet being included; meter testers' tools and appliances; reading meters; meter shop; serially numbering meters; flat rates; legal requirements, under which head are included the rules relating to meters and meter testing of the Massachusetts, New York, Wisconsin and Vermont Public Service Commissions, and also statutes or ordinances on the subject enacted by the State of North Carolina, and the cities of Baltimore and Newark, N. J. C. G. Durfee said that the exhibit made by the meter committee was so valuable from the instructional point of view that it would be to the advantage of many central stations to pay the expenses involved in having their meter men visit the exhibit for the purpose of learning how to install test and adjust the various commercial types of meters.

The following officers were elected; President, W. W. Freeman, of Brooklyn; first vice-president, John F. Gilchrist, of Chicago; second vice-president, Frank M. Tait, of Dayton. Executive committee: Alex Dow, of Detroit; H. A. Wagner, of Baltimore, and W. C. L. Eglin, of Philadelphia; Gen. George H. Harries, of Washington, D. C., treasurer, and T. C. Martin, of New York, secretary.

Mayors' Association.—The Chamber of Commerce of Grand Junction, Col., has voted to invite the Mayors of all cities and towns in Colorado, Utah, Wyoming and New Mexico to meet here in convention to discuss municipal improvement and progress. No date was decided upon.

American Association of State Fire Marshals.—A two-day annual meeting was held in the St. Charles Hotel, Milwaukee, Wis., May 24-25. President Thomas M. Purtell, State Fire Marshal of Wisconsin, presiding. The first session was taken up with work preliminary to the regular programme, and the afternoon programme consisted of the president's annual address; conference on dealing with the "fire bug"; addresses on "Celluloid," by Dr. Clarence Maris, Ohio; "Fireworks, Statutes and Ordinances Against," by J. R. Florin, Wisconsin; "Building Code," John W. Zuber, State Fire Marshal of Ohio; "Publication of School Books on Common Fire Dangers as Used in Ohio Schools," D. B. Sharp, Ohio, and a general discussion on "Uniform Tabulation of Records." The meeting Tuesday evening, May 24, was open to the public. George R. Crosby and W. E. McCullough, both of Wisconsin, spoke on "Results Accomplished by Fire Prevention Associations." Other subjects discussed were as follows: "Electrical Construction," William S. Boyd, Underwriters' Laboratory, Chicago; "Fire Prevention as Related to the Fire Marshal," illustrated, A. Lindback, Fire Commissioner of Manitoba; "Progressive Legislation," A. V. Johnson, Fire Marshal of Nebraska. Wednesday morning's session was taken up chiefly by a general discussion of methods of reducing fire waste, led by C. F. Doyle, Fire Marshal of Illinois, and F. W. Nickerk, Fire Marshal of Kentucky. Several of the Marshals told of the special work in their respective States.

Georgia State Firemen's Association.—Over a hundred fire fighters, representatives of the underwriters and those who deal in firemen's and Fire Department supplies, attended the meeting at Savannah last week. The convention was called to order by Chief Ballantyne in the Knights of Columbus Hall in the Lyons Block, and Mayor Tiedeman delivered an address of welcome, which was responded to by Chief Frank Reynolds of Augusta. There was a picnic, parade, exhibition run, sight-seeing tour, luncheon and banquet in honor of the visitors.

North Carolina State Firemen's Association.—The annual tournament will be held this year in Newbern July 25-30. The prizes for the fire companies in the State Firemen's tournament will be \$5,000, which has been given by the City of Newbern, whose bicentennial will also be celebrated at the same time.

New Jersey State Firemen's Association.—At the twenty-fourth annual convention, Trenton, May 18, James J. Manning, Elizabeth, N. J., was elected president. Other officers elected were: Secretary, E. T. Humphrey, Nutley; treasurer, Nicholas Snyder, of Trenton.

Engineers' Society of Pennsylvania.—The second annual convention of the engineers of Pennsylvania, embracing civil, mechanical, sanitary and transportation engineers, began at Harrisburg June 1 with about 800 engineers and their families in attendance. The convention continued until Friday, and in addition to numerous papers and lectures steps were taken to perfect county and district organizations and to pave the way for the adoption next year of a code to govern all engineers of the State. Prof. John Price Jackson, of State College, at the opening meeting urged engineers to take a greater interest in the problems of the day. L. E. Boykin, of the Department of Agriculture, spoke on improved highways; Vice-President J. W. V. Reynders, of the Pennsylvania Steel Company, president of the Engineers' Society of Pennsylvania, pointed out to engineers the paths yet untrodden by them in assisting an enlightened public sentiment, and Governor Edwin S. Stuart, who welcomed the convention, praised the work of engineers in the marvelous development of Pennsylvania. At the business session an attempt was made by a delegate to have the convention recommend to President Taft the retention in the Reclamation Service of C. F. Newell and A. P. Davies, but the resolution was sent to a subcommittee. A number of entertainments were given in honor of the visitors. An exhibit was held in two new car barns of the Central Pennsylvania Traction Company in North Cameron street, there being upward of seventy manufacturers represented. This was opened with appropriate ceremonies by Mayor E. S. Meals. Joseph W. Hunter, State Highway Commissioner, delivered an address on road work in Pennsylvania, criticized the present system of patch-work road building and recommended the construction of trunk lines.

Calendar of Meetings

June 7-11. **Playground Association of America.**—Fourth annual congress, Rochester, N. Y. H. S. Braucher, Secretary, 1 Madison avenue, New York City.

June 9-11. **National Association of Comptrollers and Accounting Officers.**—Fifth annual convention, Hotel Astor, New York City.

June 21-24. **American Society of Civil Engineers.**—Annual Convention, Chicago, Ill.—Charles Warren Hunt, Secretary, 220 W. 57th st., New York City.

June 22. **New England Water Works Association.**—June Outing, Providence, R. I.—Willard Kent, Secretary, Narragansett Pier, R. I.

June 21-23. **Indiana Municipal League.**—Annual Convention, Richmond.—Baltz A. Bescher, Secretary, Richmond, Ind.

June 22-24. **American Institute of Chemical Engineers.**—Semi-annual Meeting, Niagara Falls, N. Y.—J. C. Olsen, Secretary, Polytechnic Institute, Brooklyn, N. Y.

June 23-25. **Society for the Promotion of Engineering Education.**—Annual Meeting, Madison, Wis.—Henry H. Norris, Secretary, Cornell University, Ithaca, N. Y.

June 27-30. **American Institute of Electrical Engineers.**—Annual Convention, Jefferson, N. H.—R. W. Pope, Secretary, 33 West 39th st., New York City.

June 28-July 2. **American Society for Testing Materials.**—Annual Meeting, Atlantic City, N. J.—Edgar Marking, Secretary, University of Pennsylvania, Philadelphia, Pa.

June 30-July 1. **American Society of Heating and Ventilating Engineers.**—Semi-annual Meeting, St. Louis, Mo.—W. M. Mackay, Secretary, P. O. Box 1818, New York, N. Y.

July 26-27. **Western New York Volunteer Firemen's Association.**—Tenth Annual Convention,

Lockport. Charles F. Foley, Secretary, Lockport, N. Y.

August 17-20. **National Firemen's Association.**—Thirteenth Annual Convention, Rochester, N. Y. Bert Fisher, Secretary, 3812 Wabash ave., Chicago, Ill.

August 23-26. **League of American Municipalities.**—Annual Convention, St. Paul, Minn.—John MacVicar, Secretary, City Hall, Des Moines, Ia.

August 23-26. **International Association of Fire Engineers.**—Annual Convention, Syracuse, N. Y.—James McFall, Secretary, Roanoke, Va.

September 21-23. **New England Water Works Association.**—Annual Meeting, Rochester, N. Y.—Willard Kent, Secretary, Narragansett Pier, R. I.

October 11-16. **American Society of Municipal Improvements.**—Seventeenth Annual Convention, Erie, Pa.—A. Prescott Folwell, Secretary, 239 W. 39th St., New York, N. Y.

November 14-18. **National Municipal League.**—Annual Meeting, Buffalo, N. Y. Clinton Rogers Woodruff, Secretary, North American Building, Philadelphia, Pa.

PERSONALS

BANKS, W. S., and C. E. Bruner, members of the Board of Water Commissioners of Temple, Tex., have been reappointed by Mayor Hamill; Commissioners B. W. Carroll and F. L. Denison declined reappointment.

BEHRMAN, MARTIN, Mayor of New Orleans, La., has had his salary increased from \$6,000 to \$10,000 per annum, with \$2,500 per year additional for expenses.

BROUSSARD, M. L., St. Martinsville, La., has been elected Mayor over C. M. Olivier, with L. J. Duchamp, Jules Resweber, E. A. Davis, R. J. Guirard and J. A. Guerin as Councilmen.

BUCKLAND, H. C., Seabreeze, Fla., has been elected Mayor, with R. M. Mallery and D. E. Lowe as Councilmen.

BURCKHALTER, JACOB, Chief of the Fire Department of Butler, Pa., has resigned, after forty years of service, for ten years being Chief, and Wilburt Lefevre has been named as Chief of the newly organized paid department.

CAMERON, MRS. FLORA B., Waco, Tex., widow of the late William Cameron, the lumber king, has deeded to the city Proctor Springs, a 100-acre tract, to be used for park purposes, the only stipulation being that it shall be known as William Cameron Park.

CARROLL, FRANCIS M., Boston, Mass., has been appointed Acting Fire Commissioner of the city by Mayor Fitzgerald, vice Samuel D. Parker, resigned; Mr. Carroll will continue as a member of the Municipal Bath Commission.

COOLIDGE, A. L., Lead, S. D., has been elected Chief of the Fire Department.

CORKREY, WILLIAM E., member of the Water and Light Board of Brainerd, Minn., has resigned on account of pressure of other business.

COX, JOHN G., Coldwater, Mich., has been appointed Engineer of the Michigan State Highway Department by Commissioner Ely.

CRAIG, Prof. JOHN, of the Cornell University Department of Horticulture, has been engaged by the Chamber of Commerce of Binghamton, N. Y., to look after the shade trees of the city.

EDMUNDSON, Dr., Bisbee, Ariz., has been elected Mayor; Joseph McKeenhan, City Clerk; James McDonald, Street Superintendent, and B. Watkins, Marshal.

FRITSCHLER, HERMAN, Sturgeon Bay, Wis., has been elected Chief of Police, to succeed James Hall, who has held the office a few months.

GEORGE, THOMAS G., Chief of Police of Harrisburg, Pa., has resigned on request

of Mayor E. S. Meals, and Lieut. J. Thomas Zell is Acting Chief. He will become manager of a detective agency.

HALE, GEORGE C., ex-Chief of the Fire Department of Kansas City, Mo., has been appointed as a member of the Fire and Water Board by Mayor Brown. Mr. Hale is an inventor of fire-fighting appliances.

HIBBARD, GEORGE A., Mayor of Boston, Mass., until succeeded by John F. Fitzgerald when the new charter went into effect, and former Postmaster of the city, died last week.

HIGGINS, EDMUND S., Lynn, Mass., has been named by Mayor James E. Rich as License Commissioner, succeeding Peter A. Breen, who completed fourteen years of continuous service.

KEMP, WILLIAM H., South Orange, N. J., member of the Police Committee, has been named as Chief of Police, succeeding Jacob Deffur, who has fulfilled the duties as "Officer-in-Charge."

LAMBERT, CHARLES C., Painted Post, N. Y., has been elected Chief of the Fire Department, with F. G. W. Osborne and Fred Rarrick as assistants.

MACARTNEY, MORTON, the new City Engineer of Spokane, Wash., will receive \$6,000 per annum after January 1, in accordance with the recommendation of former City Engineer J. C. Ralston. The salary is now \$250 per month.

MCCARTHY, EDWARD A., New Britain, Conn., has been elected Assistant City Engineer, a newly created position, at \$1,200 per annum.

MCCARTHY, P. H., Mayor of San Francisco, Cal., received a broken ankle when an automobile in which he was riding collided with a street car at Indianapolis, Ind., last week.

MEYER, A. G., Mayor of Mankato, Minn., has been reelected under the new commission form of government, over Charles T. Taylor, the four Councilmen chosen being B. Bangerter, Jr., now Chief of the Fire Department; Robert Lamm, a real estate dealer, and Lawrence Henline and J. D. Humistone, business men.

RUCKER, Dr. W. COLBY, U. S. Public Health and Marine Hospital Service, has been appointed Health Commissioner of Milwaukee, Wis., by Mayor Emil Seidel, succeeding Dr. G. A. Bading at once.

SCHULER, RODOLPH, Chief of the Fire Department of Plaquemine, La., has resigned on account of his removal to Oklahoma, and P. T. Wilbert has been appointed Chief.

SCOTT, JOHN, City Engineer of Fort Gibson, Okla., committed suicide with a pistol while sitting on the back of a horse just outside of town last week. He was about 25 years of age.

STROH, J., Fire Marshal of Sturgeon Bay, Wis., has been reappointed.

SULLIVAN, PETER, member of the Fire Department of Phoenix, Ariz., was appointed to the position of Fire Chief, which was created for him by the City Council in recognition of his bravery in risking his life to save people who were asleep during a hotel fire.

TORMLEY, REUBEN, Kersey, Col., has been appointed Town Marshal, Street Commissioner, Water Commissioner and Fire Warden, at \$195 per year.

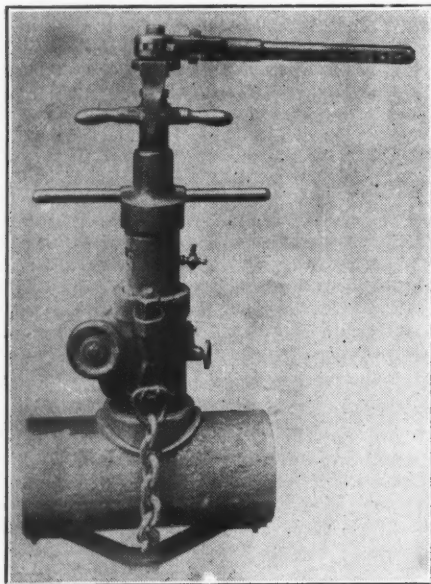
TRICKETT, EDWARD P., Chief of the Fire Department of Kansas City, Mo., until ten years ago, when the position of Fire Marshal at an advanced salary was created for him, on account of advancing years, died last week, after thirty-five years of active service, aged 69 years.

WILSON, JAMES A., Lansing, Mich., has been appointed Superintendent of Public Works of the city. He was at one time a the Board of Public Service of Akron, O. member of the City Council and also of

MUNICIPAL APPLIANCES

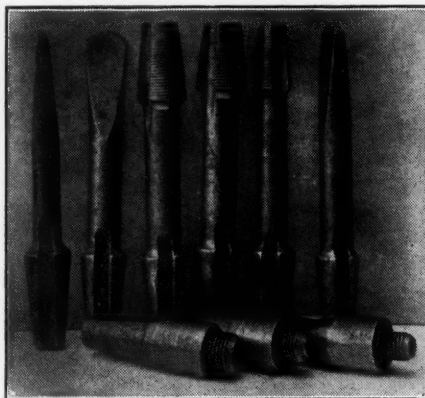
A Durable Tapping Machine

At the recent New Orleans convention of the American Water Works Association there was exhibited by the H. Mueller Mfg. Co. a tapping machine which had seen thirty years of constant service. The drills that had been used with the machine for the past 18 years were also exhibited. Mr. Frank Morrison, Bloomington, Ill., the owner of the machine and tools, wrote to the Mueller company regarding them as follows: "I have in my possession one of your water tapping machines I have had in use for the past thirty years, never failing to make a tap on every water service installed by me in all these years. I can truthfully say this machine has cost me for repairs not to exceed \$10, is now in first-class condition and is good for a great many more



TAPPING MACHINE AFTER 30 YEARS' USE

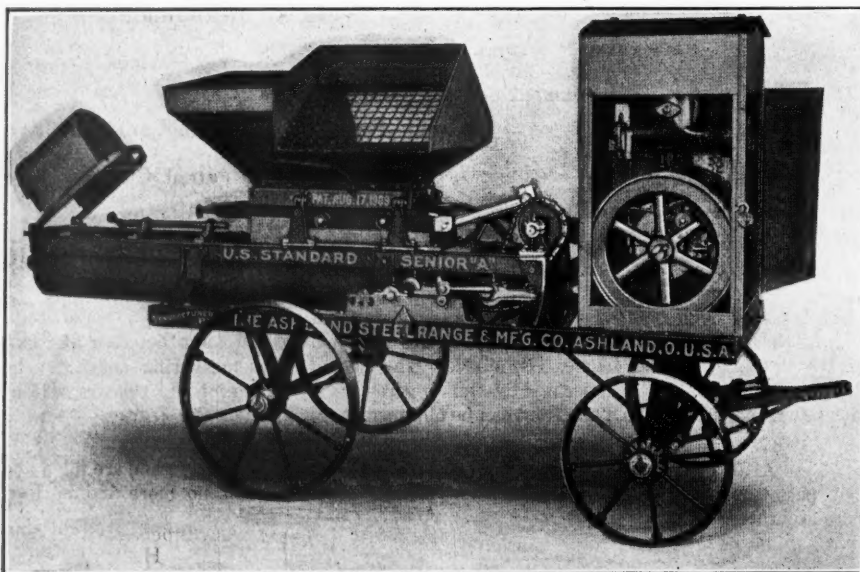
years." The exhibit attracted considerable interest at the convention. However, the manufacturers are inclined to think that this is not an isolated instance, and that there are many machines of equal or greater age in use in other cities. The attention of the trade never happened to be called to the matter before.



TAPPING DRILLS AFTER 18 YEARS' USE

Continuous Concrete Mixer

A CONTINUOUS concrete mixer with easily regulated and accurate proportioning devices is manufactured by the Ashland Steel Range & Mfg. Co., under the trade name of the United States Standard Mixer. The machine is made in three sizes, the Junior, a two-hopper machine with a capacity of 40 to 50 cubic yards per day; the Senior, two-hopper machine, capacity 70 to 80 cubic yards a day, and No. B, a triple-hopper machine having a capacity of 100 cubic yards per day. For contractors' use the machines are mounted on trucks and operated by gasoline engines. The illustration shows the two-hopper machine, one hopper for cement and one for sand or gravel. The measuring is accomplished by means of tables which form boxes in which the cement and sand are mixed. Over the mixing trough and under the hoppers are two tables, the lower one stationary and the upper one moved backward and forward by pitman rods. The lower table has square openings in it through which the concrete materials drop when the upper table is brought to the proper point by the rods. The upper sliding table rests upon four little wheels to avoid friction. This table is provided with two measuring or feed boxes. Each time these measuring boxes slide under their respective hoppers they are filled and as they return they are stroked off and the material, accurately measured, is dropped through an opening in the table below into the mixing trough. This device provides a simple but accurate method for increasing or decreasing the relative portion of cement to the other ingredients.

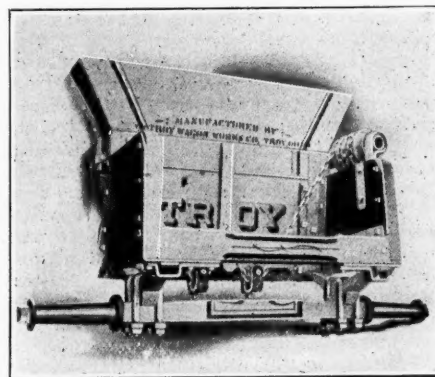


CONCRETE MIXER WITH ACCURATE MEASURING BOX

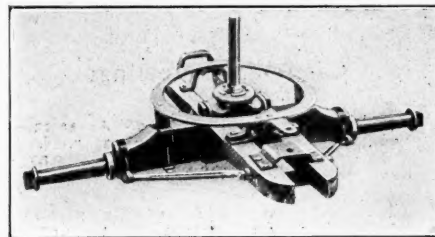
There are two adjustable slides, which are operated by thumb screws, by means of which the relative sizes of the measuring boxes can be changed. By adjusting the thumb screws any proportion of ingredients desired may be obtained. In the mixing trough there are twenty-eight paddles arranged on a single shaft. The amount of water is regulated by a valve.

Substantial Bottom-Dump Wagon

BOTTOM-DUMP wagons in 24 regular sizes are made by the Troy Wagon Works Company, Troy, Ohio. The design and workmanship of the wagons are claimed to make them unusually durable. Elaborate tests have been made with scientific instruments tending to substantiate these claims. The wagons, firmly braced and stayed, and braces, box straps, hinges, etc., are of forged steel, so that in case of accident repairs can be made by any blacksmith. The bottom doors are made of No. 10 gauge steel plates, turned at a right angle near the outer edge, rein-



END VIEW BOTTOM DUMP WAGON



SUBSTANTIAL AXLE AND FIFTH WHEEL

forced full length of under side by truss, and on ends by angle steel, all securely riveted to the door sheets, stiffening same and sealing bottom of box when closed to prevent leakage. It is impossible to close wagon without having the left door lap at least 2 inches over the right one full length where they meet in the center. The doors never swell after becoming wet or shrink when dry. The front end has forward portion of lower sides plated, inside and out, with No. 10 gauge steel made full width of the sides and securely riveted to them. The rear end is fitted with two heavy leaf springs attached to both the axle and sides of body, for the purpose of relieving and absorbing the shock and jar resulting when loaded wagon is drawn over rough or uneven surfaces and distributing the strain to all parts, thereby protecting not only the axle, but wheels and body as well and giving increased life to the entire wagon. The front gear has long and heavy hounds, and provides four supports and bearing surfaces for body, one near rear ends or 18 inches back of axle, one around and at the base of the oscillating king bolt, the other two being the upper and lower fifth-wheel circles, made of 2-inch plates 26 inches in diameter.

TRADE NOTES

Cast Iron Pipe.—Chicago: There is a fair run of orders from small municipalities for water pipe. Quotations: 4-inch, \$28.50; 6 to 12-inch, \$27.50; 16-inch and up, \$26.50. Birmingham: The principal transactions were in small lots, but the aggregate volume is satisfactory. Quotations: 4 to 6-inch, \$23; 8 to 12-inch, \$22; over 12-inch, average, \$21.50. San Francisco: Movement active; individual orders for moderate lots and inquiries from all along the Coast. New York: No new transactions; demand satisfactory; prices, \$25.50-\$26 per net ton, tidewater, for 6-inch in carload lots.

Lead.—Demand active; outside interests are selling lead in New York at 4.37½¢ and in St. Louis at 4.22½¢. Market strong, with lead at St. Louis held at 4.25¢, and special brands higher.

Indurated Fibre Conduit.—The H. W. Johns-Manville Co., 100 William street, New York City, has placed on the market a new type of conduit for underground electric cables. It is made of indurated fibre, a material which has been used very extensively for insulating purposes, such as third-rail coverings, controller linings, battery boxes, etc. Water pails, etc., have also been made of it for many years. The fibre is molded into shape at high temperature and pressure, and is claimed to be entirely without grain or lamination. An interesting feature of the new conduit lies in its bell joints. One end of each section is molded to an enlarged size—belled out—with an opening as large as the outside diameter of the opposite end of the next section. Thus, any two sections fit together without any reduction in the wall thickness of either section at the joint. This makes a stronger and more rigid connection than is possible with any other kind of joint. These joints may be of the short "socket," of the deeper "sleeve," or of a screwed type. To fit installations on a few systems, demanding straight joints without bell ends, the conduit is being made with the straight joint in which the jointed walls are of the usual half thickness. The manufacturers claim that by reason of there being no seams or roughness at the joints of this conduit and as the air-tight joints prevent particles of concrete from seeping through a No. 6 wire can be pushed through each duct from manhole to manhole, doing away with the ropes and rods so necessary with ordinary conduits. Tests made of this conduit with ¾-inch thickness of wall show that it has an average puncture voltage of 40,000 dry and 33,000 volts after 40 hours' immersion in water.

Steam Fire Engine Test.—A new second size Metropolitan steam fire engine was tested, May 26, in Rochester, N. Y., for Commissioner of Public Safety Chas. Owen and Fire Chief Charles S. Little. In two and one-half minutes after the fire was started the steam gauge registered 10½ pounds. At 50 pounds pressure the engine was started. At the end of six minutes, the steam pressure was 120 pounds, and the engine was throwing an inch and a half stream to a height of five stories. According to measurements made by Supervisor of Engines Frank Walter, the engine threw 850 gallons per minute with a nozzle one and three-quarter inches in diameter—which was 150 gallons in excess of the guaranteed capacity.

Electric Combine.—The Athens Railway & Electric Co., of Athens, Ga., has been authorized to issue \$750,000 of common stock, \$300,000 of preferred and \$825,000 of bonds. The company will take over the Athens Electric Railway and also the James White Power Co. The combination will include the power plant at Mitchell's Bridge, the new plant at Barnett Shoals, the plant and equipment of the old company, besides valuable franchises, etc. The officers of the new company are: William T. Bryan, president; J. Y. Carithers, first vice-president; C. D. Flanigan, second vice-president; John White Morton, secretary; C. D. Cox, treasurer.

Railway and Lighting Deal.—In connection with the purchase of the Salisbury & Spencer railway and lighting properties at Salisbury, N. C., by the Piedmont Railway Co., it is stated that the new owners will make extensive improvements to the gas plant, extending mains and otherwise enlarging it. This is the company which is constructing a street railway in Concord, N. C. and it is anticipated now that the contemplated interurban road between Concord and Salisbury will soon be completed. The property purchased includes an electric railway from Spencer via Salisbury to Fulton Heights Park, the electric-light system of both Spencer and Salisbury and the gas works of Salisbury, which supply both that city and Spencer. The properties were bought from the firm of Edward Dean & Co., bankers, Grand Rapids, Mich. The officers of the Piedmont Railway Co. are W. F. Snider, president; T. H. Vanderford, vice-president; T. J. Jerome, secretary. M. L. Jackson, of Salisbury, and T. D. Maness, of Concord, are also interested.

Gas-Electric Motor Car.—Those connected with railway work will be interested in the attractive pamphlet recently issued by the General Electric Company, describing the single truck type of gas-electric motor car. The car is at present in regular service, and is similar in appearance to the ordinary single truck motor car. The car body and trucks are especially designed for strength and lightness. The equipment consists of a direct coupled gas-engine and generator with an exciter on the same shaft, all completely inclosed and mounted between the axle of the truck and below the car floor, so that the interior of the car is entirely unobstructed. The operation is similar to that of an ordinary trolley car, and the car can be operated in either direction with equal facility. The car, motor, and engine are illustrated and described in Bulletin No. 4730, which contains also a table of its schedule speeds.

Tire Equipment.—An illustrated booklet of interest to city officials has been received from The Firestone Tire & Rubber Co., describing their dual pneumatic tire and demountable rim equipment for use on automobile fire engines, ambulances, patrol wagons, etc. The Firestone Company recommend this equipment as the most effective means of preventing tire delays in reaching fires and making other quick runs. Copies of the booklet will be mailed upon request.

Road Drainage.—Evans & Howard Fire Brick Co., St. Louis, Mo., have published in convenient booklet form an address on "Road Location Drainage and Construction," by W. R. Goit, president of the Oklahoma Good Roads Association, before the National Good Roads Convention at Topeka, Kan.

Refuse Disposal.—The Reliance Engineering & Equipment Co., of Milwaukee, Wis., which has been widely identified with the industrial engineering field, recently broadened its interests and has now taken up the subject of refuse disposal for small cities, hotels, hospitals, etc. Additions have been made to the engineering force of the company and the engineer in charge of the new work is one who has had wide experience in dealing with refuse disposal in all parts of the country. He has visited practically every plant that is in operation, either for the incineration of refuse or the reduction of garbage, and is probably as well qualified as any expert in the country to pass on the requirements necessary for such purposes. In this new work the company is prepared to act either as consulting engineers or to take contracts and build complete plants. C. A. Tupper, who has been in charge of the sales promotion work of Allis-Chalmers Co. for several years, recently resigned to assume the position of manager of the Reliance Engineering & Equipment Co., which has offices at 1417-1419 in the Majestic Building, Milwaukee. The company is also represented at 604 Mission street, San Francisco, and for all Eastern work it will be associated with the Sando Engineering Co., of Boston, which is headed by Will J. Sando, formerly manager of the Pumping Engine & Hydraulic Turbine Departments of Allis-Chalmers Co.

Expanded Metal.—The North Western Expanded Metal Company, Old Colony Building, Chicago, Ill., publishes a booklet of 70 pages, containing data for the use of expanded metal and expanded metal lath. A number of pages are given to a discussion of reinforced concrete sidewalks, with reference to the factor of safety. Another booklet on "Highway Bridge" includes data on slab and girder bridges, abutments and concrete arch bridges.

Maracaibo Asphalt.—Consul I. A. Manning, of La Guayra, Venezuela, has reported the resumption of mining operations at the Inciarts asphalt deposits, on the Rio Simon, in the Lake Maracaibo region. There is a large quantity of high-grade asphalt in sight, at least 200,000 tons, but there are difficulties in transportation which tend to limit shipments and increase costs.

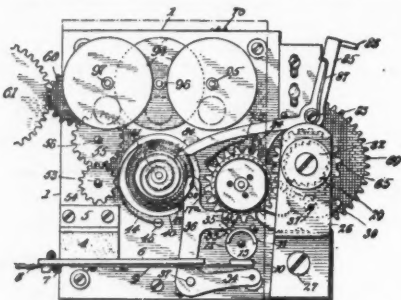
Dumping Wagons.—The Haywood wagon Co., Newark, N. Y., is now occupying its new factory. The plant consists of a one-story building, 565 ft. long and 117 ft. wide, a storehouse 265 ft. long by 65 ft. wide, two dry kilns 25 by 45 ft. each and a two-story office building 45 ft. square. All of the buildings are of steel and concrete construction and the plant is equipped throughout with electricity, steam heat, a sprinkler system, and compressed air service. Eastern Sales Manager S. D. Cramer, of 618 West 136 street, New York City, states that the company is prepared to fill all orders except on special work, within two weeks of date of order and that the capacity of the plant will be about 4500 finished wagons a year.

Measuring Instruments.—Brown & Sharpe Manufacturing Company, Providence, R. I., announces that the business heretofore conducted in the name of F. A. Rich, agent, Chicago, will hereafter be in the name of Brown & Sharpe Manufacturing Company, with Henry Buker as Western representative. Mr. Rich will remain connected with the Chicago office.

PATENT CLAIMS

957,534. **PREPAYMENT ELECTRICITY-METER.** Hermann Aron, Charlottenburg, Germany, assignor to the American Aron Electricity Meter Company, a corporation of New Jersey. Serial No. 347,433.

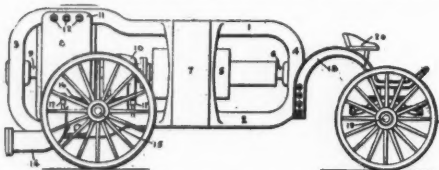
A coin-controlled vending machine comprising a supply member for establishing and interrupting the supply of the commodity to be delivered, an oscillatory controlling member therefor and connections



intermediate the same and the supply member whereby the latter may be thrown into and out of operative or commodity-supplying position, actuating means adapted to be rendered operative by the introduction of a coin in setting the controlling member out of initial position to cause the supply member to assume its supply position, and means acting independently of the energizing influence of said actuating means whereby said controlling member is returned to initial position to cause the cutting off of the supply of commodity.

957,903. **PORTABLE FIRE-ENGINE.** Richard H. Rice, Lynn, Mass., assignor to General Electric Company, a Corporation of New York. Serial No. 451,710.

A portable fire engine having an upright truss frame open at its sides and provided with parallel top and bottom members and



connecting end members, a pump and its driving motor arranged on the frame between the top and bottom members thereof, and a common shaft for the pump and motor extending longitudinally of the frame and journaled in the end members of said frame.

957,985. **PROCESS OF MAKING PAVEMENTS.** J. Y. McClintock, Rochester, N. Y. Serial No. 460,900.

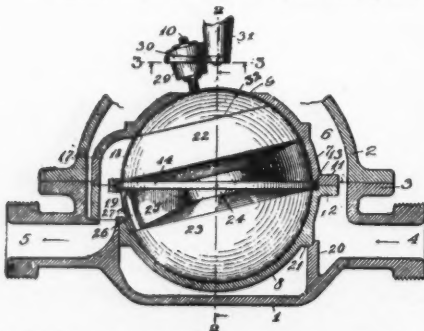
The process of making pavements, which consists of preparing a suitable foundation, spreading small cubical blocks of vitrified



brick or other suitable material on said foundation, raking said blocks together into a compact layer and filling up the space between them, substantially as described.

958,408. **WATER-METER.** Otto F. Kadow, Cleveland, Ohio. Serial No. 379,329.

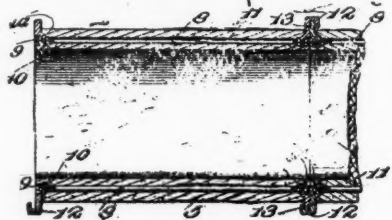
A meter comprising a spherical piston



having at the central portion thereof a recess, a disk in said recess, means for wobbling said piston, and a division plate spanning said recess and extending through said disk, the piston having at the central portion of said recess a spherical bearing fitting in an aperture in said disk, substantially as specified.

958,043. **CONCRETE PIPE.** Frederick A. Stockley, Montour Falls, N. Y. Serial No. 491,404.

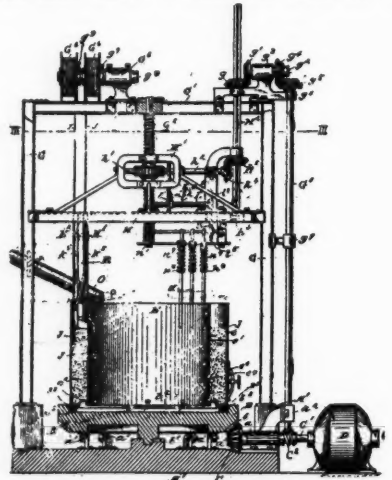
A concrete pipe including spaced heads having their inner peripheral edges provided with spaced perforated ears radiating toward the center of the pipe and having their outer faces spaced from the outer faces of the heads, threaded reinforcing rods connecting said ears, a strip of foraminous material embedded in the concrete and bearing against the rods, clamping nuts engaging the threaded portions of



the rods and bearing against the inner and outer faces of the ears, and attaching lugs secured to each head for engagement with the head of an adjacent pipe when several of said pipes are assembled, the attaching lugs on the head at one end of each pipe being disposed diametrically opposite to the lugs on the head at the opposite end of said pipe, the concrete forming the body of the pipe being disposed flush with the outer faces of the heads and covering the clamping nuts of the reinforcing rods.

958,156. **MACHINE FOR MAKING REINFORCED CONCRETE PIPE.** Harry R. McMahon, Cleveland, Ohio. Serial No. 408,341.

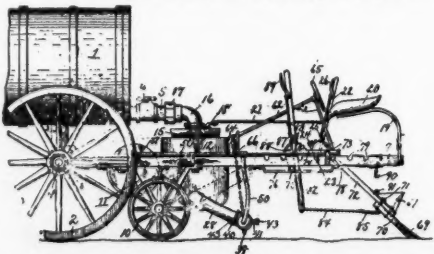
In a machine for manufacturing reinforced concrete pipe, the combination of a horizontal shaft, a rotatable table for re-



ceiving a mold, a mold mounted upon the latter, a carrier mounted so as to be capable of vertical movement toward and from said table, means comprising said shaft for effecting both the rotatable and vertical movement, reinforcement guiding-means mounted upon said carrier, and means for automatically feeding concrete to said mold.

958,434. **OIL-DISTRIBUTING APPARATUS.** Charles P. Price, Malden, Mass., assignor to American Tar Company, Boston, Mass., a Corporation of Massachusetts. Serial No. 447,554.

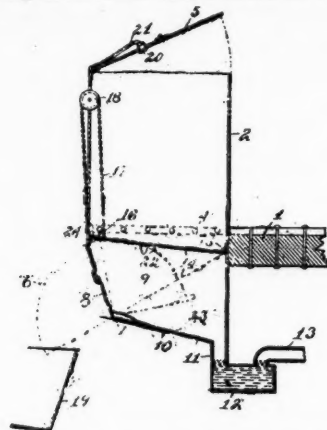
A brushing apparatus including in combination a supporting frame, adapted to be attached to a distributing device, wheels on which said frame is carried, a seat on



said frame, a plurality of brushes, means for independently supporting said brushes on said supporting frame, and means adjacent said seat whereby the position of said brushes relative to each other may be independently adjusted longitudinally of the frame and the angle of the brushes relative to the supporting frame varied.

958,414. **SANITARY GARBAGE-TANK.** Joseph Mast, Fort Riley, Kan. Serial No. 536,733.

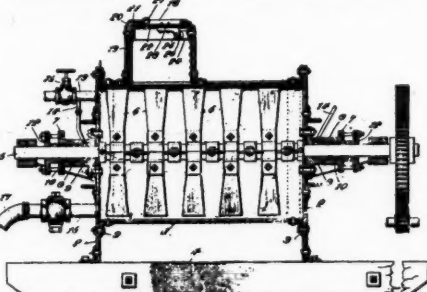
A garbage receptacle having a discharge opening in its lower end, a chute for receiv-



ing the material from said opening, a plate for holding the material above said opening, and means for tilting said plate to deliver the material thereon to the chute.

958,421. **GROUT-MIXER.** William McIlvrid, Jersey City, N. J., assignor to Cockburn Barrow & Machine Company, Jersey City, N. J. Serial No. 285,657.

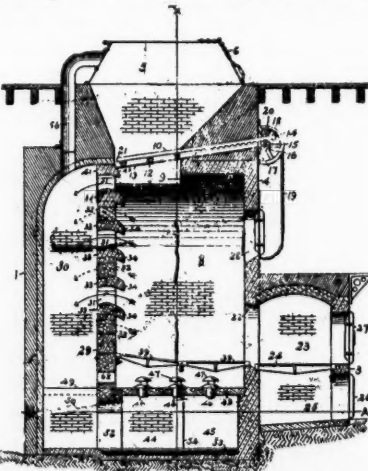
In a mixing machine, a receptacle for the materials, a rotary shaft extending therethrough, blades on said shaft, a pipe



conducting motive fluid under pressure to said receptacle, a packing box having a chamber surrounding said shaft without said receptacle, and a passage establishing communication between pipe and chamber.

958,308. **INCINERATING PLANT.** Edward F. Price, Lancaster, and Thomas F. Bennett, Philadelphia, Pa., assignors of one-third to John F. Keller, Lancaster, Pa. Serial No. 448,473.

In an incinerating plant, walls forming in combination, a main furnace, an initial furnace in communication therewith, and a drying chamber as a receptacle for the material to be consumed, said chamber being adapted to dry the material previous



to its incineration; a removable separator between the drying chamber and the main furnace, provided with gutters for liquid flowing and inclined to facilitate the flow, and provided with an open space at its lower end, to permit the flow to the main furnace; projecting bricks from the main furnace's back wall adapted to catch and evaporate the liquid flow, and means for moving the separator to discharge the material into the main furnace.

THE MUNICIPAL INDEX

In Which Are Listed and Classified by Subjects All Articles Treating of Municipal Topics Which Have Appeared During the Past Month in the Leading Periodicals

It is our purpose to give in the second issue of each month a list of all articles of any length or importance which have appeared in all the American periodicals and the leading English, French and German ones, dealing more or less directly with municipal matters. The index is kept up to date, and the month of literature covered each time will be brought up to within two or three days of publication. Our chief object in this is to keep our readers in touch with all the current literature on municipal matters. In furtherance of this we will furnish any of the articles listed in the index for the price named after each article, except that where an article is continued in two or three issues of the paper, the price given is for each of said issues. In addition to the titles, where these are not sufficiently descriptive or where the article is of sufficient importance, a brief statement of its contents is added. The length also is given, and the name of the author when it is a contributed article.

ROADS AND PAVEMENTS

Road Administration and Maintenance. Economic and Administrative Points of View. By Logan Waller Page, Director U. S. Office of Public Roads. Illustrated, 17 pp., Journal of Franklin Institute, May 50 cts.

Road Question from the Users' Point of View. Paper before Irish Road Congress. By R. J. Macredy. 2½ pp., Surveyor, May 13. 20 cts.

The Roads Question. Financial and administrative considerations. By H. T. Wakelam, county engineer and surveyor, Middlesex, England. 2½ pp., Surveyor, April 22. 20 cts.

Road Congress, International. Report on the first congress to Local Government Board of Ireland. By P. C. Cowan, chief engineering inspector to board. 3½ pp., Surveyor, April 22. 20 cts.

Irish Road Congress. Synopsis of papers. 3 pp., Contract Journal, May 4; 1 2-3 pp., May 11; 1 1-2 pp., May 18. 20 cts.

Association of Highway Engineers and Commissioners. Organization of new association. ½ p., Engineering News, May 19. 15 cts.

Construction and Maintenance, Road. Paper before Surveyors' Institution. By R. F. Grantham. 2½ pp., Surveyor, May 20. 20 cts.

Road Construction and Maintenance. Paper before Surveyors' Institution. By Wm. Menzies. 2¼ pp., Surveying, May 20. 15 cts.

Construction and Maintenance of Roads. Papers before Surveyors' Institution. By R. F. Grantham and Wm. Menzies. 1 p., Contract Journal, May 4. 20 cts.

Trunk Roads. Discussions of their construction and maintenance. By M. A. Ennis, county councillor, Wexford; and W. H. Leete, county surveyor, Bedfordshire, England. 3 pp., Surveyor, April 22. 20 cts.

Irish Roads. Their construction, maintenance and administration. 1¼ pp., Surveyor, April 22. 20 cts.

Road Repair and Maintenance Work of Metropolitan Park Commission, Massachusetts. Methods and cost. ½ p., Engineering-Contracting, May 11. 10 cts.

Resurfacing Worn Out Macadam Roads in New Jersey. ½ p., Engineering-Contracting, May 18. 10 cts.

Macadam Construction for Towns. Economics and Principles. By D. T. Black, City Engineer, Campbelltown. 2 pp., Canadian Municipal Journal, May. 10 cts.

Steam Rolling of Roads. Discussion with illustrations, cost, etc. By E. A. Hackett, Surveyor, Tipperary County. 1½ pp., Surveyor, May 13. 20 cts.

Materials Used in Construction of Roads. Proposed standardization of such materials. Discussions by W. Howard-Smith and others. 2½ pp., The Surveyor, April 22. 20 cts.

Economical Supply of Road Metal. By John W. Leebody, County Surveyor, South Tyrone, England. 1¼ pp., Surveyor, April 22. 20 cts.

Testing Stone Used in Road Construction. Methods of New York State Highway Commission. ½ p., Engineering-Contracting, May 4. 10 cts.

Up-to-Date Roads. General discussion of roads and materials. By R. O. Wynne-Roberts. Illustrated, 5 pp., Surveyor, May 13. 20 cts.

Specifications for Highway Works. Paper before Institution of Municipal Engineers. By John W. Moncre, Borough Engineer, Sunderland, England. 1 p., Surveyor, May 20. 20 cts.

Suggestions on Contracts and Specifications for Regulating Paving Work. By General Contractors Association to New York Board of Estimate and Apportionment. 4 pp., The Bulletin, May. 10 cts.

Dust Preventive Work in Massachusetts. Discussion before Massachusetts Highway Association. ¾ p., Engineering Record, May 14. 10 cts.

Dust Laying Experiments. In Lewisham, England. ¼ p., Contract Journal, May 4. 20 cts.

Tarring Roads. Detailed costs in England. By R. J. Thomas, County Surveyor of Bucks, England. 1½ pp., Surveyor, April 22. 20 cts.

Standardization of Tar for Paving Purposes. 2¼ pp., Engineering-Contracting, May 25. 10 cts.

Use of Tar on Roads. By A. D. Whitaker. 5½ pp., Progressive Age, May 16. 20 cts.

Surface Spraying of Roads with Tar, and Tar Macadam. By T. Aitkin, County Surveyor, Cupar. 1¼ pp., Surveyor, May 20. 20 cts.

Bituminous Macadam Roads for Heavy Motor Traffic. Synopsis of paper by W. H. Fulweiler before International Road Congress. 2 pp., Engineering-Contracting, May 11. 10 cts.

Cost of Bituminous Roads in New Jersey. Details from Annual Report of State Commissioner. 1¼ pp., Contractor, May 15. 20 cts.

Tar Macadam. A plea for standardization. By J. Walker Smith, City Engineer, Edinburgh, Scotland. Illustrated, 9 pp., Surveyor, April 22. 20 cts.

Tar Macadam on Roads. Paper before Illinois Gas Association. By F. E. Newbury. 1¼ pp., American Gas Light Journal, May 23. 10 cts.

Oiled Roads in Canada. Their economy and efficiency. ¾ p., The Surveyor, April 22. 20 cts.

Specifications for Oiling Roads in New York State. 1¼ pp., Canadian Engineer, May 27. 15 cts.

Waterproofing Road Surfaces. Paper before Association of Municipal and County Engineers. By Geo. W. Manning, District Surveyor, Staines, England. 1 p., Surveyor, May 20. 20 cts.

Road Crust Construction. Principally discussion of use of a patented material. By Joseph Mathison, District Surveyor, Langport, England. 2½ pp., Surveyor, April 22. 20 cts.

Grouted Macadam Road. Experiment by New York State Commission of Highways. ½ p., Contract Record, May 11. 20 cts.

Sand-Clay Road Construction in Kansas. Paper before Missouri Highway Engineers Association. By W. S. Gearhart, State Highway Engineer of Kansas. 1 p., Engineering-Contracting, May 18. 10 cts.

Steep Gradients, Paving Roads having. English Practice. ¾ p., Engineering-Contracting, May 4. 10 cts.

Tramways, Influence of, on Street Paving. By R. O. Wynne-Roberts. Paper before Association of Municipal and County Engineers. 2 3-4 pp., Surveying, May 20. 15 cts.

Concave Roadways. Arguments for and against. 1-4 p., Municipal Journal and Engineer, May 11. 10 cts.

Convex, Concave and Center Channel Roads. Comparison of relative advantages. By Harold E. Turner, assistant engineer and surveyor, Surbiton, England. Illustrated, 2 1-2 pp., Surveyor, April 22. 20 cts.

Carriageway, A Word on the, Economy, cost, etc. By Henry E. Stillgoe, city engineer and surveyor of Birmingham, England. 4 1-2 pp., Surveyor, April 22. 20 cts.

Pavement Crowns. Suggestions for a Rational Formula for Street. Exhaustive discussion of formulas and coefficients. By G. B. Zahner. Illustrated, 2 1-4 pp., Engineering News, May 5. 15 cts.

Improvement of Wide Streets in Salt Lake City. Central parking. 1 1-2 p., Engineering Record, May 21. 10 cts.

Improvement of City Highways. Paper before League of Nebraska Municipalities. By Geo. Campen, assistant city engineer of Omaha. 3 1-2 pp., Midland Municipalities, May. 10 cts.

Asphalt Industry. Conditions at Venezuela, Lagaira, Winnipeg and Germany. 4 pp., Weekly Consular and Trade Reports, May 21. 10 cts.

Asphalt Repairs in Brooklyn. Figures for 1909. 1 3-4 pp., Municipal Engineering, June. 25 cts.

Brick Paved Highways. Paper before National Brick Manufacturers' Association. By W. P. Blair. Illustrated, 6 1-2 pp., Municipal Engineering, June. 25 cts.

Exclusively Brick Paved City. Fort Smith, Ark. Illustrated, 1 1-4 pp., Clay Worker, May. 25 cts.

Wood Block Cressoting. Comparison of specifications of 14 cities. 1 p., Municipal Journal and Engineering, May 25. 10 cts.

Wood Block Paving in London. 1 1-2 pp., Weekly Consular and Trade Reports, May 21. 10 cts.

Wood Paving. Conclusions from London practice. By James P. Norrington. 2 pp., Surveyor, April 22. 20 cts.

Characteristics of Creosote. Real and fictitious products. 1 p., Engineering Record, May 7. 10 cts.

Highway Law in England. Some notes by a barrister at law. By Sydney D. Turner. 3 pp., Surveyor, April 22. 20 cts.

Sidewalks, City Control of. 1-4 p., Municipal Journal and Engineer, May 25. 10 cts.

Proposed Sidewalk Ordinance. Recommended in Cleveland. 1-2 p., Municipal Journal and Engineer, June 1. 10 cts.

Congest Streets, Sky Scrapers. 1-4 p., American Contractor, May 14. 15 cts.

Viaduct, A Monster. Work on the Grand Avenue Viaduct at Milwaukee. Illustrated, 3 pp., Contractor, May 1. 20 cts.

SEWERAGE AND SANITATION

Design of Storm Water Drains in a Modern Sewer System. Practical Treatise covering entire subject. By Jean Bart Balcomb. Paper before Western Society of Engineers. 31 pp., Proceedings of Society for 1910. \$1.50.

Main Drainage. General treatise on removing storm water. By Henry G. Lloyd. Illustrated, 3 pp., Surveying, May 20. 15 cts.

Constructing Western Avenue Sewer, Chicago. Construction methods. Illustrated, 2 pp., Engineering-Contracting, May 4. 10 cts.

North Shore Channel of the Sanitary District of Chicago. Purpose and Methods of Construction. By C. R. Dart, bridge engineer of the district. Illustrated, 4 1-2 pp., Engineering Record, May 14. 10 cts.

Sewer Interceptors at Columbus. Descriptions of gate interceptors. By Julian Griggs. Illustrated, 2 1-2 pp., Municipal Journal and Engineer, June 1. 10 cts.

Concrete, Effect of Sewage and Sewage Gases on Portland Cement. Paper before Concrete Institute. By Sidney H. Chambers, Engineer and Surveyor of Hampton, England. 2 pp., Surveyor, April 29. 20 cts.

1 1-4 pp., Engineering-Contracting, May 25. 10 cts. 1 p., Engineering Record, May 14. 10 cts.

How Concrete Tile have behaved in Sewers and Drains. Abstract of Report by Universal Portland Cement Company. 3 pp., Concrete, May. 15 cts.

Some Experiments on the Durability of Cement Drain Tile. Paper before Canadian Cement and Concrete Association. By Prof. W. H. Day, Ontario Agricultural College. 2 pp., Municipal Engineering, June. 25 cts. 4 pp., Cement, April. 20 cts.

Erosion of Sewer Inverts. Tests on various materials. By E. S. Rankin, engineer of sewers and drainage, Newark. 3-4 p., Municipal Journal and Engineer, May 18. 10 cts.

Sewage Purification in Wisconsin. List of plants. 1-4 p., Municipal Journal and Engineer, June 1. 10 cts.

Sewage Disposal Ideals. By W. C. Easdale. 3 pp., Canadian Engineer, May 20. 15 cts.

Disposal of Sewage. Editorial Discussion of recent practice. 2-3 p., Contract Journal, May 4. 20 cts.

Sewage Disposal in the United States. Editorial discussion of 1908 Report of Massachusetts State Board of Health. 1 p., Surveyor, April 29. 20 cts.

Treatment of Storm Water. The English Point of View. By Geo. H. Hart, Engineer of Sewers, Leeds, England. 10 pp., Journal Royal Institute of Public Health, May. 60 cts.

Sewage Disposal Works of Chiswick, England. Precipitation tanks and filters. Paper before Association of Municipal and County Engineers. By J. H. Abbott, resident engineer. 1 1-4 pp., Surveyor, May 20. 20 cts. 1 p., Contract Journal, May 4. 20 cts.

Leicester Sewage Works. Description of sedimentation tanks, contact beds, and broad irrigation. Paper before Royal Sanitary

- tary Institute. By E. George Mawbey, borough engineer. 3 pp., Surveyor, April 29. 20 cts. 1 p., Contract Journal, April 27. 20 cts.
- Sewage Purification Results at Plainfield, N. J., in 1909. By A. J. Gavett, city surveyor. 1-2 p., Engineering News, May 5. 15 cts.
- Litchfield's Sewerage and Sewage Disposal Works. By W. B. Chancellor. Illustrated, 21-4 pp., Canadian Engineer, May 27. 15 cts.
- Sewage Disposal at Lancaster, N. Y. Septic tanks and contact beds. Illustrated, 1 p., Engineering Record, May 7. 10 cts.
- Cost of Sewage Purification. Comparison with water purification. 1-3 p., Municipal Journal and Engineer, May 18. 10 cts.
- Cost of Sewage Disposal. Estimate of various methods. By Emil Kuichling. 1-2 p., Municipal Journal and Engineer, May 18. 10 cts.
- Septic Tank Question. Opposition to patents in California. 21-2 pp., Pacific Municipalities, March 31. 20 cts.
- Slate Beds, Massachusetts State Board and. Credit for originating slate beds. By W. J. Diddin. Illustrated, 2 pp., Surveyor, May 13. 20 cts.
- Clarifying Sewage. Effect of using screens and grit tanks. Figures in American and European cities. From report by Emil Kuichling to the city of Rochester. 21-4 pp., Municipal Journal and Engineer, June 1. 10 cts.
- Separation of Sewage Solids. Abstract of paper before Royal Institute of Public Health. By A. J. Martin. 1 p., Municipal Journal and Engineer, May 25. 10 cts.
- Removal of Organic Matter from Sewage by Screens and Tanks. Report to city of Rochester. By Emil Kuichling. 2 pp., Engineering Record, May 21. 10 cts.
- Disinfection of Sewage and Sewage Filter Effluents. By Earle B. Phelps. 1 p., Canadian Engineer, May 13. 15 cts.
- Bleaching Powder for Disinfecting Sewage. From paper by Earle B. Phelps before Engineers' Club of Philadelphia. 1-4 p., Engineering-Contracting, May 11. 10 cts.
- Dilution, Sewage Disposal by. Discussion of theory and practice. From report by Emil Kuichling. 1 p., Municipal Journal and Engineer, May 11. 10 cts.
- Passaic Valley Sewerage. Discussion of agreement between Commission and Government. 1-2 p., Municipal Journal and Engineer, May 11. 10 cts.
- Passaic Valley Sewerage. Stipulations between Commission and U. S. Government. 1 p., Engineering News, May 12. 15 cts.
- Purification of the Clyde. British decision on steam pollution. 1-2 p., Contract Journal, April 27. 20 cts.
- Protection of Oyster Beds. Faversham sewage scheme. 3-4 p., Surveyor, April 22. 20 cts.
- Catch Basins, Oiling. 1-4 p., Municipal Journal and Engineer, June 1. 10 cts.
- Sewer Gas and Disease. Discussion of Report by Professor Winslow. 3-4 p., Surveying, May 20. 15 cts.
- Public Conveniences in London. 1-2 p., Consular and Trade Reports, May 28. 10 cts.
- Public Sanitary Station at Brookline. Paper before Boston Society of Civil Engineers. By Alexis H. French. Illustrated, 4 pp., Journal of Association of Engineering Societies, April. 30 cts.
- Public Sanitary Station at Lawrence. Paper before Boston Society of Civil Engineers. By Arthur D. Marble. Illustrated, 10 pp., Journal, Association of Engineering Societies, April. 30 cts.
- Health Exhibition, Municipal and. In London, England. 1 p., Contract Journal, May 11. 3-4 pp., May 18. 20 cts.
- Sanitary Code for Texas. Disposal of refuse, slaughter houses, markets, etc. 10 pp., Bulletin, Texas State Board of Health, April. 10 cts.
- Plague Carriers, Fleas as, between Rats and Ground Squirrels. By Geo. W. McCoy, surgeon U. S. Marine Hospital Service. 1 p., Public Health Reports, May 20. 10 cts.
- Milk Pasteurization, Holding Method of. Principles and apparatus. By Chas. E. North. Illustrated, 21-4 pp., Engineering News, May 12. 15 cts.
- WATER SUPPLY**
- Potable Waters, Conservation of. Paper before American Water Works Association. By J. M. Divin. 21-2 pp., Water and Gas Review, May. 20 cts.
- Caverns and Subterranean Rivers of Belgium. By van den Broeck, Martial and Fahr. 3 pp., La Technique Sanitaire, May. 50 cts.
- Inlet Tunnel Water Supplies, Sanitary Condition of, Immediately after Completion. Results at Gary, Ind. Abstract of paper before Illinois Water Supply Association. By John W. Alvord and Lewis I. Birdsall. 11-4 pp., Engineering News, May 5. 15 cts.
- Water System of Buffalo. Brief description. Illustrated, 3-4 p., Fire and Water, May 11. 10 cts.
- Water System of New Orleans. Paper before American Water Works Association. By George G. Earl. 1 p., Fire and Water, May 18. 10 cts.
- Coolgardie Water Scheme. General description. Paper before Transvaal Institute of Mechanical Engineers. By B. P. Richardson. 41-4 pp., Water, May 17. 20 cts.
- Reservoir, Western High-service, Baltimore Waterworks. Description of reservoir and its construction. By Alfred M. Quick. Illustrated, 31-4 pp., Engineering News, May 26. 15 cts.
- Water Tank, Forms for Concrete. Circular tank 24 feet diameter. Illustrated, 1-2 p., Engineering Record, May 7. 10 cts.
- Construction of a Concrete Water Tower, at Victoria, B. C. Abstract of paper before American Society of Civil Engineers. By A. Kempkey. Illustrated, 31-2 pp., Contract Record, May 18. 20 cts.
- Siphon, Reinforced Concrete. Method of design for New York Water Supply. By J. Ralph Van Duyn, assistant engineer, New York Board of Water Supply. Illustrated, 53-4 pp., Engineering Record, May 28. 10 cts.
- Tunnel, Constructing Water Supply, Through Rock by Day Labor. Method and cost at Fort William, Ontario. 61-2 pp., Engineering-Contracting, May 25. 10 cts.
- Los Angeles Aqueduct. Structural details and working organization. Illustrated, 41-2 pp., Engineering-Contracting, May 4. 10 cts.
- Los Angeles Aqueduct. Present condition of work. By Edward P. Bailey. Illustrated, 31-2 pp., Municipal Journal and Engineer, May 11. 10 cts.
- Day Labor versus Contract Work on Los Angeles Aqueduct. 11-4 pp., Engineering-Contracting, May 18. 10 cts.
- Progress of the Los Angeles Aqueduct. Illustrated, 3 pp., Engineering Record, May 21. 10 cts.
- Progress of Catskill Aqueduct. 1-2 p., American Contractor, May 21. 15 cts.
- Pipe Line, 72-inch, Steel, of Brooklyn Water Supply. Illustrated, 2 pp., Municipal Engineering, June. 25 cts.
- Cost of 48-inch Cast-iron Force Main. At Detroit, Mich. 1-4 p., Contract Record, May 11. 20 cts.
- Cost of Constructing 18-inch Cast-Iron Water Mains by Day Labor at Fort William, Ontario. 2-3 p., Engineering-Contracting, May 18. 10 cts.
- Concrete Pipe at Toronto. Construction for filtration plant. By Francis F. Longley, resident engineer. Illustrated, 11-2 pp., Municipal Journal and Engineer, May 25. 10 cts.
- Concrete Dam and Conduit. Under construction at Reading, Pa. Illustrated, 3 pp., Municipal Journal and Engineer, June 1. 10 cts.
- Reinforced Concrete in Water Construction. Highland Park reservoir, Los Angeles. Illustrated, 31-2 pp., Cement World, May 15. 15 cts.
- Pumping Plants for Deep Wells and Bore Holes, Steam Driven. Paper before Association of Water Engineers, England. By Alfred Towler. Illustrated, 61-2 pp., Engineering Digest, May. 20 cts. Illustrated, 23-4 pp., Fire and Water, June 1. 10 cts.
- Electrically-driven Water Works Plant at Mattoon, Ill. Paper before Missouri Electric, Gas, Street Railway and Waterworks Association. By H. W. Clark, superintendent. 2 pp., Municipal Engineering, June. 25 cts.
- Fairview Pumping Station. Description of mechanical plant in Detroit. Illustrated, 11-2 pp., Power, May 31. 5 cts.
- Regulating Valve, Water Pressure, with Electrical Quick Opening Attachment. Illustrated, 1-2 p., Engineering News, May 5. 15 cts.
- Fire Hydrants, Uniformity in. 1-4 p., Municipal Journal and Engineer, May 11. 10 cts.
- Water Meters in Cleveland, Effect of Installation of. Paper before Cleveland Engineering Society. By Jos. C. Beardsley. 2 pp., Water and Gas Review, May. 20 cts.
- Meter Maintenance. Abstract of paper by A. W. Cuddeback before American Water Works Association. 1-3 p., Municipal Journal and Engineer, May 25. 10 cts.
- Calculating Meter Errors. Table used in Hartford. 1-2 p., Municipal Journal and Engineer, June 1. 10 cts.
- Fire Service Water Supply System at Winnipeg, Man. General description. 3-4 p., Engineering-Contracting, May 25. 10 cts.
- Water Treatment at Columbus. Filter construction. Chemicals used. Results obtained. Illustrated, 23-4 pp., Municipal Journal and Engineer, May 11. 10 cts.
- Biological Purification of Water. By Henri Michel, Engineer of Roads and Bridges. 6 pp., La Technique Sanitaire, May. 50 cts.
- Chemistry and Conservation of Water Resources. Purification of water. Address before Franklin Institute. By Prof. M. T. Bogert. 11-2 pp., Chemical Engineer, May. 25 cts. 5 pp., Journal Franklin Institute, May. 50 cts.
- Water Purification in Poughkeepsie. Data for 1909. 1 p., Contract Record, May 11. 20 cts.
- Some Phases of the Water Purification Problem. Conditions at Sacramento. By Prof. Chas. D. Hyde. 16 pp., California Journal of Technology, May. 15 cts.
- Filtration Plant, Toronto. Description of filters and their construction. By Francis F. Longley, resident engineer. Illustrated, 6 pp., Municipal Journal and Engineer, May 18. 10 cts.
- Harrisburg Water Filtration Plant. Results for 1909. 1-3 p., Engineering Record, May 7. 10 cts.
- Water Filtration versus Sewage Pollution. Editorial. 1 p., Canadian Engineer, May 13. 15 cts.
- Water Filtration in Theory and Practice. By George C. Whipple. Illustrated, 8 pp., Canadian Engineer, May 6. 15 cts.
- Sterilization of Water. Use of ozone and hypochlorite. Paper before American Water Works Association. By Walden and Howell, Baltimore County Water and Electric Company. 21-4 pp., Water and Gas Review, May. 20 cts.
- Ozonizer Efficiency. Correspondence between Dr. K. G. Frank and Clifford D. Meeker. 1-2 p., Municipal Journal and Engineer, May 25. 10 cts.
- Water Sterilizing Plant at Montreal. Illustrated, 1-2 p., Contract Record, May 11. 20 cts.
- Important Opinion on Water Sterilization. Discussion of Court of Chancery decision of the Jersey City water case. 3-4 p., Engineering Record, May 21. 10 cts.
- Disinfection of Water and Sewage. General history and present status. Paper before Engineers' Club of Philadelphia. By Earle B. Phelps. 1 p., Engineering Record, May 14. 10 cts.
- Water Softening at McKeesport. Results obtained in a year's service. 1 p., Municipal Journal and Engineer, May 25. 10 cts.
- Municipal Water Softening at McKeesport. 2 pp., Engineering-Contracting, May 11. 10 cts.
- Municipal Water Softening. Experience at McKeesport. Paper before American Water Works Association. By Alexander Potter. 61-2 pp., Municipal Engineering, June. 25 cts.
- Lime Sludge Bacteria. 1-4 p., Municipal Journal and Engineer, May 25. 10 cts.
- German Water Softener. Description of "Permutit". 1-2 p., Improvement Bulletin, May 14. 15 cts.
- Deoxidizing Water to Prevent Corrosion of Street Mains. Synopsis of report on Coolgardie pipe line. 11-2 pp., Engineering Record, May 21. 10 cts.
- Action of St. Louis Water on Metals and Alloys. Paper before American Water Works Association. By W. F. Monfort. 3-4 p., Engineering News, May 12. 15 cts.
- Typhoid Rates in New York. Figures for all cities in that state. 1 p., Municipal Journal and Engineer, June 1. 10 cts.
- Atchinson's Health and Water Supply. 1-4 p., Municipal Journal and Engineer, May 18. 10 cts.
- Benefits from Sand Filters. Reduction of typhoid by Philadelphia filters. By Francis E. West, chemist in charge, Torresdale Laboratory. Illustrated, 11-2 pp., Municipal Journal and Engineer, June 1. 10 cts.
- Assessing for Water Pipe Extensions. Method employed at Tacoma. 1-4 p., Municipal Journal and Engineer, June 1. 10 cts.
- Franchise, Co-operative Water Works. Paper before American Water Works Association. By John W. Alvord. 13-4 pp., Fire and Water, May 11. 10 cts.
- Valuation of Water Works System of Richmond, Ind. Paper before Indiana Sanitary and Water Supply Association. By Howard A. Dill, engineer and superintendent. 2 pp., Municipal Engineering, June. 25 cts.
- Water Rates in Cities. Comparisons generally useless. 1-2 p., Engineering News, May 12. 15 cts.
- Cost of Furnishing Water with Reference to Rate Making. Discussion by American Water Works Association. 2 pp., Fire and Water, May 25. 10 cts.
- American Water Works Association. Report of Annual Convention. 21-2 pp., Engineering News, May 5. 15 cts. 3 pp., Fire and Water, May 11. 10 cts. 91-2 pp., Engineering Record, May 7. 10 cts.
- Stadia Surveys for New York State Water Supply. Cost of. From Report of Commission for 1909. 2-3 p., Engineering-Contracting, May 4. 10 cts.
- STREET LIGHTING AND POWER PLANTS**
- Public Lighting in Billings, Mont. Illustrated, 4 pp., Illuminating Engineer, April. 20 cts.
- New Street Lighting in Des Moines. Illustrated, 21-2 pp., Illuminating Engineer, June. 20 cts.
- Lighting in Central Park, N. Y. Illustrated, 3 pp., Illuminating Engineer, April. 20 cts.
- Seeing Indianapolis by Night. Description of street lighting. By Chas. L. Eshleman and E. F. Fradette. Illustrated, 51-2 pp., Illuminating Engineer, June. 20 cts.

Decorative Lighting in Gary, Ind. Illustrated. 2 pp., Illuminating Engineer, May. 20 cts.

Ornamental Street Lighting in Lincoln, Neb. Tungsten Lamps on trolley poles. Illustrated. 1-2 p., Electrical Review, May 28. 10 cts.

Private Lighting Standards, Municipal Regulation of. By L. Lodian. Illustrated. 2 pp., Illuminating Engineer, May. 20 cts.

Requirements in Street Lighting. Analysis of Illumination. By Arthur J. Sweet. Illustrated. 25 pp., Journal of the Franklin Institute, May. 50 cts.

Metal Filament Lamps. Technical description. Paper before American Institute of Electrical Engineers. By John W. Howell. Illustrated. 12 pp., Proceedings of the Institute, June. \$1.00.

Development of Electric Lighting. Brief history. 1-4 pp., Electrical Review, May 21. 10 cts.

Some Developments in Modern Lighting Systems. Paper before American Institute of Electrical Engineers. By C. W. Stone. 10 pp., Proceedings of the Institute, June. \$1.00.

Measurement of Light and Illumination. 1 p., American Gas Light Journal, May 30. 10 cts.

Rates for Electric Lighting. Editorial. 1 p., Electrical Review, May 21. 10 cts.

Contracts, Factors that Should be Considered in Making Street Lighting. Paper before Ohio Electric Light Association. By S. M. Rust. 2-1-2 pp., Municipal Engineering, June. 25 cts.

Underground Electrical Distribution. General discussion of structural features. By W. E. Hazletine. 3 1-4 pp., Electrical Review, May 21. 10 cts.

Gas, Sulphur Compounds in Illuminating. Paper before American Gas Institute. By Chas. J. Ramsburg. 7 pp., Progressive Age, May 16. 20 cts.

Caloric Value of Gas in Wisconsin Cities. Discussion before Illinois Gas Association. 1 p., American Gas Light Journal, May 16. 10 cts.

Control of Uniform Candle Power. Paper before Pennsylvania Gas Association. By C. R. Stull. 1-1-4 pp., American Gas Light Journal, May 16. 10 cts.

FIRE AND POLICE

Fire Hydrants, Abuse of. 1-4 p., Municipal Journal and Engineer, June 1. 10 cts.

Fire Hose Specifications. 1-4 p., Municipal Journal and Engineer, May 18. 10 cts.

Standard Hose Couplings and Hydrant Fittings. Report of special committee of National Fire Protection Association. 1 p., Fire and Water, May 25. 10 cts.

Searchlights for Fire Departments. Advantages of use and some illustrations. Illustrated. 2 pp., Fireman's Herald, May 7. 5 cts.

Fire Extinguishing, Water versus Chemicals for. Discussion of action of New York Merchants' Association. 1-2 p., Fireman's Herald, May 14. 5 cts.

Pumps, Centrifugal Fire. Characteristics, capacities, etc. By F. H. Rice, engineer Chicago Board of Underwriters. Illustrated. 8 pp., Insurance Engineering, May. 25 cts.

Fire Protection at Lansing. Apparatus and methods. Illustrated. 1 p., Fire and Water, May 25. 10 cts.

Fire Escapes. Safe and unsafe ones. Illustrated. 1-1-2 pp., Fireman's Herald, May 21. 5 cts.

Fire Hazard at Newburyport. Report of National Board of Fire Underwriters. 1 p., Fire and Water, June 1. 10 cts.

Fire Hazard in San Antonio. Report by National Board of Fire Underwriters. 1 p., Fire and Water, May 18. 10 cts.

Medals for Bravery. Discussion of their advisability. 1-3 p., Fireman's Herald, May 14. 5 cts.

Autos for Police. 1-4 p., Municipal Journal and Engineer, May 18. 10 cts.

Golden Rule Chief of Police. Story of the system of Chief Kohler, of Cleveland. By Frederic C. Howe. Illustrated. 10 pp., Everybody's, June. 15 cts.

GOVERNMENT AND FINANCE

Charter of Indianapolis. Address before Los Angeles City Club. By Caleb S. Denney. 2 pp., Municipal Engineering, June. 25 cts.

Commission Plan of City Government. Rapid Spread of. 1 p., Engineering News, May 26. 15 cts.

Should Commissioners under a Commission Form of Government Serve without Pay? By Hon. Don L. Love, Mayor of Lincoln. 9 3-4 pp., Midland Municipalities, May. 10 cts.

Municipal Parliament. Account of annual convention in England. 4 1-2 pp., Municipal Journal, April 29. 15 cts.

Municipal Enterprises in Leeds, England. Light, gas and public markets. 2 1-4 pp., Weekly Consular and Trade Reports, May 21. 10 cts.

Public Service Commissions. General statement concerning state commission.

1 2-3 pp., Electrical Review, May 21. 10 cts.

Engineering Estimates for Public Utility Commissions. Editorial. 1-2 p., Engineering Record, May 14. 10 cts.

Relation of Municipalities to Public Service Corporations. By Percy V. Long. 4 1-2 pp., Pacific Municipalities, March 31. 20 cts.

Franchise, Arbitrating a. Pekin City and Water Works Company, 1-3 p., Municipal Journal and Engineer, May 25. 10 cts.

City Expenditures in Europe and America. Some statistics. 1 1-2 pp., Review of Reviews, June. 25 cts.

BRIDGES AND STRUCTURAL MATERIALS

Cement Inspection for the Baltimore Sewerage Commission. Method of inspecting. 1-4 p., Engineering Record, May 28. 10 cts.

Concrete, Machine vs. Hand Mixed. By C. W. Gaylord. 1 p., Contractor, May 1. 20 cts.

Action of Sea Water on Portland Cement. Results of Tests. By J. M. O'Hara, Southern Pacific Laboratory. 1 1-4 pp., Engineering Record, May 21. 10 cts.

Effect of Sewage Gases on Portland Cement Concrete. Paper by S. H. Chambers and discussion of same by Concrete Institute. 1 1-2 pp., Contract Journal, April 27. 20 cts. 1 1-2 pp., Surveying, May 20. 15 cts. 3 1-4 pp., Municipal Engineering, June. 25 cts.

Arch, Analytic Calculation of a Concrete. Involving higher mathematics. By Malvered A. Howe, Professor of Civil Engineering, Rose Polytechnic Institute, 3 1-4 pp., Engineering News, May 12. 15 cts.

Reinforced Concrete Municipal Bridges. Advantages, cost, etc. By A. W. Connor. Illustrated. 3 1-4 pp., Contract Record, May 11. 20 cts.

Reinforced Concrete Corners. Desirability of. Illustrated. 1-3 p., Municipal Journal and Engineer, June 1. 10 cts.

CITY PLANNING AND BEAUTIFYING

Planning New City Areas. Paper before Conference on City Planning. By Nelson P. Lewis, chief engineer, Board of Estimate and Apportionment, New York City. 1 3-4 pp., Municipal Journal and Engineer, May 11. 10 cts. 3-4 p., Engineering Record, May 14. 10 cts. 1-2 p., American Contractor, May 21. 15 cts. 1 1-4 pp., Engineering News, May 12. 15 cts.

Town Planning Hints. General discussion. By R. H. Haynes, borough engineer of Newport, England. 2 3-4 pp., Municipal Journal, May 20. 15 cts. 1 1-4 pp., Contract Journal, May 18. 20 cts. 3 1-2 pp., Surveyor, May 13. 20 cts.

Conference on City Planning. Report of second National Conference at Rochester. 2 pp., Engineering News, May 12. 15 cts.

Planning Greater London. Conference of city authorities. 2 pp., Municipal Journal, May 13. 15 cts.

Plan Commission. City. Adopted in Hartford, Conn. 1-2 p., Municipal Journal and Engineer, May 18. 10 cts.

Germany, City Building in. 1-8 p., American Contractor, May 21. 15 cts.

English Town Planning Act. Brief synopsis. 1-3 p., Municipal Journal and Engineer, June 1. 10 cts.

Health, Highways and Housing. Account of exhibition in London. Illustrated. 3 1-2 pp., Municipal Journal, May 13. 15 cts.

Traverse Work, Primary, of the Bronx Topographical Bureau, New York City. By Edward H. Holden, assistant engineer in charge of surveys. Illustrated. 1 1-2 pp., Engineering News, May 19. 15 cts.

Irregularly Laid Out Cities. 1-4 p., American Contractor, May 7. 15 cts.

An Odd Shaped City. Los Angeles, Cal. By L. R. W. Allison. Illustrated. 1-3 p., Engineering News, May 5. 15 cts.

Grade Separation. Discussion of grade crossings. By W. H. Breithaupt. 1 1-2 pp., Canadian Engineer, May 13. 15 cts.

MISCELLANEOUS

Playgrounds in a City of 100,000 Population. 2 pp., The Playground, May. 25 cts. Children's Gardens and Playgrounds in Pensacola, Fla. By John Bradford. 2 pp., Playground, May. 25 cts.

Park Notes, Boston. 1-4 p., Municipal Journal and Engineer, May 11. 10 cts.

Public Markets of Philadelphia. 1-4 p., Municipal Journal and Engineer, May 18. 10 cts.

Washington Market, Newark, N. J. Description of model private market. Illustrated. 2 pp., Municipal Journal and Engineer, May 25. 10 cts.

Baths, Open Air. In suburbs of London. Family bathing. Illustrated. 1 p., Municipal Journal, May 13. 15 cts.

Trees, Transplanting Huge. 1-8 p., American Contractor, May 21. 15 cts.

Tree Commission for San Leandro, Cal.

History and ordinance. 2 1-4 pp., Pacific Municipalities, March 31. 20 cts.

Municipal Development in Oakland, Recent. By A. A. Denison, Geo. E. Dickie and others. 12 pp., Pacific Municipalities, April 30. 20 cts.

Galveston, Growth of the city in recent years. Illustrated. 1 3-4 pp., The Tradesman, May 26. 10 cts.

Growth of Gary. Brief history of that city. 2-3 p., American Contractor, May 14. 15 cts.

Corey: Model City From the Ground Up. Description of construction of Alabama city. By Albert Phenix. Illustrated. 1-2 pp., Manufacturers Record, June 2. 15 cts.

Municipal Works of Lichfield, England. By W. B. Chancellor, city surveyor. Illustrated. 3 pp., Surveyor, April 22. Illustrated. 3 pp., April 29. 20 cts. 1 1-4 pp., Contract Journal, April 27. 20 cts.

Municipal Works of Chiswick, England. Paper before Municipal and County Engineers. By Edward Willis, District Engineer, 2 pp., Contract Journal, May 4. 20 cts.

Municipal Enterprise. 1-4 p., American Contractor, May 21. 15 cts.

City Promotion, Course in. In University of Wisconsin. 1-4 p., Municipal Journal and Engineer, May 18. 10 cts.

Modern Art of Advertising a City. By Chas. F. Roland, Commissioner Winnipeg Development Bureau. Illustrated. 3 pp., Western Municipal News, May. 10 cts.

Municipal Engineering, Prospects in. Paper before Institution of Municipal Engineers. By B. Wyand. 1 1-2 pp., Surveyor, May 20. 20 cts. 1 1-2 pp., Surveying, May 20. 15 cts.

Contract Work for Municipal Projects. Discussion before Boston Society of Civil Engineer. By Chas. R. Gow. 1 1-2 pp., Contract Record, May 11. 20 cts. 2 1-4 pp., Municipal Engineering, June. 25 cts.

Town Scavenging and Refuse Disposal. Utilization of heat from refuse destruction. By Hugh S. Watson. 2 1-2 p., Municipal Engineering, June. 25 cts.

Garbage Disposal in Paris. 1-4 p., Municipal Journal and Engineer, May 18. 10 cts. 1-4 p., Engineering-Contracting, May 4. 10 cts. 1-4 p., American Contractor, May 14. 15 cts.

Chemical Utilization of Municipal Waste. By E. K. Hammond. Illustrated. 5 1-2 pp., Chemical Engineer, May. 25 cts.

Street Railways, Increase of Traffic and Accidents on New York. 1-4 p., Engineering News, May 5. 15 cts.

Reduced Weight in Street Cars. Desirability of. 1 p., Engineering News, May 12. 15 cts.

City Track Construction. Paper before Iowa Street and Interurban Association. By W. A. Heindle. Illustrated. 2 1-2 pp., Canadian Engineer, May 20. 15 cts.

Rates Charged by Public Service Corporation. Rational method of determining reasonableness, and discussion of theory of profits. 1 1-4 pp., Engineering-Contracting, May 25. 10 cts.

Underground Construction in Seattle, Wash. Standard Specifications for. Location of conduits and underground structures. By H. L. Estep. Illustrated. 2 pp., Engineering News, May 12. 15 cts.

Rolling Snow on Country Highways. 1-3 p., Engineering-Contracting, May 4. 10 cts.

Gas Producer Plants. Tests by U. S. Geological Survey. Illustrated. 3 pp., Pacific Builder, May 7. 15 cts.

Surveying Instruments, Simple and Inexpensive. Paper before Illinois Society of Engineers and Surveyors. By Prof. J. T. Stewart. 1 1-2 pp., Engineering-Contracting, May 11. 10 cts.

Sliding Sluice Gates, Charles River Basin, Boston. Description of construction and mechanism. By Walton H. Sears, division engineer Charles River Basin Commission. Illustrated. 1 1-3 pp., Engineering News, May 26. 15 cts.

Education, Limitations of Efficiency in Engineering. By George F. Swain, Professor of Civil Engineering, Harvard University. 4 1-2 pp., Engineering News, May 12. 15 cts.

Civil Service Examinations for Assistant Water Supply Engineer, Hydraulic Engineer and Transman. New York Board of Water Supply. 1 1-2 pp., Engineering News, May 12. 15 cts.

Independence Day. Plea for a safe and sane Fourth. By John B. Huber. 2 pp., Review of Reviews, June. 25 cts.

Celebrating the Fourth in Large Cities. Substitutes for fire works. By Lee F. Hammer. 3 pp., The Playground, May. 25 cts.

Census Statistics, Municipal. List of erroneous data which formed the basis of previous editorial. 2 pp., Municipal Journal and Engineer, June 1. 10 cts.

Ozone, Production and Uses of. General statement. 1 p., Electrical Review, May 28. 10 cts.

Purifying Air of Public Buildings. Ozone plant in Chicago public library. Illustrated. 1 p., Municipal Journal and Engineer, June 1. 10 cts.

THE WEEK'S CONTRACT NEWS

Relating to Municipal and Public Work—Street Improvements—Paving, Road Making, Cleaning and Sprinkling—Sewerage, Water Supply and Public Lighting—Fire Equipment and Supplies—Bridges and Street Railways—Sanitation, Garbage and Waste Disposal—Police, Parks and Miscellaneous—Proposals and Awards

To be of value this matter must be printed in the number immediately following its receipt, which makes it impossible for us to verify it all. Our sources of information are believed to be reliable, but we cannot guarantee the correctness of all items. Parties in charge of proposed work are requested to send us information concerning it as early as possible; also corrections of any errors discovered.

STREET IMPROVEMENTS

Birmingham, Ala.—Improvement of Bradley st. and Third ave. has been ordered.

Ensley, Ala.—City has decided to pave 30th st.

Gadsden, Ala.—Council has adopted ordinance for brick paving on 3d, 4th and Chestnut sts.; bids will be asked.

Linden, Ala.—Marengo County is considering issuance of bonds for improvement of roads.

Montgomery, Ala.—Mayor Gaston Gunter and City Engineer A. R. Gilchrist are considering completion of continuous highway to Pickett Springs.

Little Rock, Ark.—City will construct pavement of vitrified brick on 4-in. concrete foundation, at cost of \$40,000.—E. A. Kingsley, City Engineer.

Chico, Cal.—Citizens have voted \$55,000 street improvement bonds.

Oakland, Cal.—Board of Supervisors has decided to improve Dublin Canyon road; cost, about \$5,000.

Marysville, Cal.—Chamber of Commerce is considering building of roadway between this city and Sierra County line; cost \$12,000.

Porterville, Cal.—Citizens have voted \$60,000 bonds for public improvements.

San Francisco, Cal.—Peralta Heights Improvement Club is urging \$25,000 appropriation for paving city's portion of street in front of Bernal square.

Stockton, Cal.—Bids will soon be advertised for 238 miles of road in San Joaquin County, with asphaltic macadam; \$1,890,000 bonds will be sold.

Weaverville, Cal.—Supervisors of Trinity County will soon issue \$125,000 bonds for construction and improvement of county roads in five road districts.

Milford, Del.—Residents are urging improvement of public highway from this city to Frederica, distance 8 miles.—G. L. Grier, President Milford Good Roads Association.

Key West, Fla.—Bids will probably be received about Aug. 15 for paving; cost, about \$300,000; material not yet decided.—Hazelhurst & Anderson, Atlanta, Consulting Engineers.

Atlanta, Ga.—General Council is considering \$13,000 appropriation for completing paving of Marietta st.—R. M. Clayton, City Engineer.

Dalton, Ga.—City has selected H. S. Jaudon Engineering Co., Savannah, Ga., as engineer in charge of street paving; cost \$75,000.—Paul B. Trammell, Mayor.

Chicago, Ill.—City will pave four streets with creosoted block; cost \$44,000.

O'Fallon, Ill.—Citizens have voted \$6,000 good road bonds.

Indianapolis, Ind.—Board of Public Works has adopted four improvement resolutions.

Council Bluffs, Ia.—Council has decided to improve 14 streets.—A. W. Casady, City Clerk.

Perry, Ia.—City has rejected as too high all bids received for proposed paving.

Toledo, Ia.—Paving of four streets is being considered.

West Union, Ia.—City will try crude oil on streets.

Muscatine, Ia.—Council has ordered construction of number of new sidewalks in First and Fourth Wards.

Fort Scott, Kan.—Paving of Fourth st. has been ordered; paving of Market square is being considered.

Kansas City, Kan.—Commissioners have passed ordinance providing for extending Quindaro Boulevard line west one mile.

Leavenworth, Kan.—City Commissioners have passed ordinance to pave 6th st.

Bellevue, Ky.—Bids will be asked for reconstruction of Fairfield ave. with vit. brick, asphalt, creosoted block or granitoid.

Maysville, Ky.—Council has passed ordinance to pave W. Second and Market sts. with vitrified brick.

Augusta, Me.—No bids were received for building section of State road about 5.4 miles in length; new bids will be called for.—Paul D. Sargent, State Commissioner of Highways.

Bellerton, Md.—Town has sold \$2,000 street improvement bonds to Capt. Chas. Bacon.

Detroit, Mich.—Council has directed De-

partment of Public Works to advertise for bids for paving Chicago Blvd. with sheet asphalt; cost, \$46,400; Butternut st. with cedar blocks, \$6,136, both on concrete foundations, with Medina Berea or other approved curbing; also for paving three alleys with vitrified brick on concrete, \$1,500, \$2,250 and \$3,340.—J. J. Haarer, Commissioner.

Negaunee, Mich.—Citizens have voted \$30,000 bonds to pave principal streets.

Port Huron, Mich.—The city council ordered the Superintendent of Public Works to advertise for bids for paving driveway and replanking 7th st. bridge.

Faribault, Minn.—Rice County will expend \$3,000 in improving roads.

Libby, Mont.—Council has passed ordinance creating special improvement district No. 2, providing for laying of 4½ miles of cement sidewalks.

Miles City, Mont.—Custer County Commissioners will order 19 four-horse graders for road construction.

Plains, Mont.—Citizens have voted \$130,000 bonds for roads and bridges.

Polson, Mont.—City is considering bond election for grading of streets.

Eatontown, N. J.—Township Committee is considering ordinance ordering laying of sidewalks on all streets.

Long Branch, N. J.—Council has passed ordinances for construction of sidewalk and curbing Joline ave.—C. O. McFaddin, Mayor.

Mount Holly, N. J.—Pemberton Township residents have asked Township Committee to issue bonds to gravel roads from Brown's Mills to Ocean County line, from Pemberton to Lewistown and from South Pemberton to Earl's Corner.

Roselle Park, N. J.—Board of Trade is urging repair of Westfield ave.

Trenton, N. J.—Council has decided to advertise for bids for paving Olden ave. with fibertine; paving of Rusling ave. with asphalt and Beatty and Genesee sts. with fibertine is being considered.

Lockport, N. Y.—Bids have been ordered advertised for construction of cement walks on number of streets.

Olean, N. Y.—City is considering paving with brick four streets.

Rochester, N. Y.—Widening of Frank st. is being considered.

Utica, N. Y.—Paving of Green and Warren sts. is being considered.

Wadesboro, N. C.—Bids have been rejected for proposed street improvement bond issue.

Columbus, O.—County Commissioners have decided to improve Dublin road, at cost of \$36,000.

Martins Ferry, O.—Council has passed ordinances for grading Monroe and Fourth sts. and two alleys.

Mansfield, O.—Bids will soon be received for constructing 3 miles of water-bound macadam between Plymouth, Vass and Shiloh; cost, \$20,000.—J. C. Wonders, Columbus, State Highway Commissioner.

New Lexington, O.—Council passed ordinance for the improvement of School ave. with paving brick or block.—Harry J. Stalter, Clerk.

Niles, O.—City has sold \$2,000 street improvement bonds to Citizens National Bank of Wooster.

Shelby, O.—Bids will soon be received for ¾ mile of pike macadam in Jackson Township; cost, \$3,000.—Address W. D. Coover, R. F. D.

Springfield, O.—Council has decided to pave E. High st. with asphalt block or asphalt.

Worcester, O.—Bids will be received in about three weeks for one mile of brick paving in Creston Township. Board of Commissioners, Wayne County, reconsidering construction of one mile of brick road west of city. J. L. Zaring, County Auditor.

Lahoma, Okla.—Citizens will vote June 11 on \$1,500 bonds to repair streets.

Cottage Grove, Ore.—Bids will soon be called for paving about 26 blocks of streets.

Marshfield, Ore.—County Commissioners have \$110,000 available for construction of roads.

Portland, Ore.—Council has approved plans for Hassam paving on east side; cost \$200,000.

Portland, Ore.—East Water st. is to be improved with Hassam.

Clifton Heights, Pa.—Borough will increase indebtedness \$120,000 for highways, lights and water.

McKenzie, Tenn.—Citizens have voted \$20,000 bonds for street paving and extension of water works.—J. D. Herron, Mayor.

Canadian, Tex.—City will expend \$3,000 to improve streets and crossings.—J. H. Hood, Mayor.

Houston, Tex.—St. Louis & San Francisco Railroad will soon begin proposed paving of Spring st.—M. C. Byers, St. Louis, Chief Engineer.

Longview, Tex.—Citizens have voted to pave streets.

McKinney, Tex.—Collin County will vote June 28 on \$128,000 bonds for construction of about 40 miles of road.

Stamford, Tex.—Citizens have voted \$10,000 bonds for street paving.

Provo, Utah.—Residents on 9th West st. have asked for street improvements.

Abingdon, Va.—Washington County will improve roads, at cost of \$15,000.

Petersburg, Va.—Public Improvement Committee will recommend to Council construction of granolithic sidewalks on four streets; cost \$9,000.

Portsmouth, Va.—Bids will be received June 30, noon, for \$125,000 paving and street improvement bonds.—L. P. Slater, City Clerk.

Roanoke, Va.—City has invited bids on paving 13th st. and Franklin road, Holiday st. and Church ave; \$285,000 bonds available.

Greenacres, Wash.—Commercial Club is urging opening of Center, Poplar and Mission sts.

Spokane, Wash.—Council has confirmed plans for paving Cannon Hill.

Benwood, W. Va.—Contracts will soon be awarded for sidewalks on Fourth and Fifth Wards.

Appleton, Wis.—Paving of Oneida st. with creosoted blocks and Appleton st. with asphalt is being considered.

Janesville, Wis.—Purchasing Committee of Council has decided to purchase Austin road grader.

Vancouver, B. C., Can.—Council has authorized regrading and block paving of Pender st. E., cost \$105,735, and block paving of Granville st. S., cost \$741,030.

Rosthern, Sask., Can.—Town Council is calling for tenders for 30 yards of clean gravel and 20 barrels of cement.

Victoria, B. C., Can.—Plans have been outlined by City Engineer for paving, to cost nearly \$700,000.

CONTRACTS AWARDED

Gadsden, Ala.—Treating Forest ave. with liquid asphalt to Southern Road Co.

Rome, Ga.—Bitulithic paving to Warren Bro. Co., Boston, Mass., \$23,075.38, and Floyd ave. and Stanwix st., \$8,243.35.

Muncie, Ind.—Construction of combination curb and gutter on E. Adams st., to Wm. Berch, 44c. per ft.

Topeka, Kan.—Grading streets, to Lutesham & Folks, 60,000 cu. yds. earth excavation, 25c.; setting 30,000 lin. ft. cement curb, to same bidder, 45c.—W. S. Fulton, City Engineer.

Louisville, Ky.—Granitoid sidewalks, average 91c. per sq. yd.; total cost \$11,900; five contracts to G. W. Gosnell & Co.; seven to G. W. Younger & Co., and eleven to L. R. Figg & Co.

Baltimore, Md.—Paving Poplar Grove st. with sheet asphalt to F. E. Schneider Paving Co., 331 Law Bldg., Baltimore, \$69,711.11.

Grand Rapids, Minn.—Widening county road No. 21, to J. M. Pogue, 50c. per rod; grading road No. 50, to M. M. Rosholt, 75c. per rod; grading and clearing road No. 53, to Wm. Smith, \$2.50 per rod; improvement of Borey Grand Rapids road, to A. A. Mitchell, \$3.345; road No. 27, to M. M. Rosholt, \$1.080; portion road No. 63, to Geo. Arscott, \$2.40 per rod.

Moorhead, Minn.—Paving 1st ave., to Jas. Kennedy.

Butler, Mo.—Brick paving to Hipple & McSpadden, Vinita, Okla., 11,000 sq. yds. \$1.69; C. A. Clark, Nevada, Engineer.

St. Joseph, Mo.—Macadamizing 18th st., to Young Bros., about \$1,200.

Jersey City, N. J.—Improvement of Newkirk st., to Michael J. Curley; Delaware ave., to Van Keuren & Son.

Roosevelt, N. J.—Cement sidewalks, 25,000 sq. ft., to Debow & Glendinning.

Albany, N. Y.—Improvement of public highways by State aid: Altamont village, county highway No. 849, Albany County, length 1.10 miles, to Delaware Construction Co., Sidney, N. Y., \$25,000, Bermudez; Olean-Hinsdale, Part 1, state highway No. 5066, Cattaraugus County, 2.94 miles, to F. L. Cohen, Buffalo, N. Y., \$34,900, residuum; Falconer village, state highway No. 5067, Chautauqua County, 1.06 miles, to S. T. Benson & Co., Falconer, N. Y., \$44,753, brick; Norwich village state highway No. 5057, Chenango County, .51 mile, to Creedon & Pitou, New York City, \$10,300; Keeseville-Ausable Chasm state highway No. 5056, Clinton County, 2.28 miles, to Sherrill Hardware & Plumbing Co., Hudson Falls, \$22,860, Bermudez; Keeseville village, county highway No. 859, Clinton and Essex Counties, to John B. Dower, Ballston Spa, \$15,750, Bermudez; Cortland-Truxton, Part 1, county highway No. 738, Cortland County, 6.51 miles, to Thos. O'Hern, Yonkers, \$63,848.82, Bermudez; Delaware River, county highway No. 145-R, Delaware County, 1 mile, to Creedon & Pitou, New York, \$9,896, residuum; State Farm, county highway No. 525-A, Erie County, .59 mile, to Standing Construction Co., Collins, \$5,977; Hamburg village, county highway No. 862, Erie County, .97 mile, to Hurley & Lyne, Fredonia, \$47,500; Village county highway No. 863, Erie County, 1.06 miles, to F. V. E. Bardol, \$21,000; Aurora-Glenwood, Sec. 1, county highway No. 866, Erie County, 2.01 miles, to F. V. Brotsch Co., Rochester, \$30,198; Aurora-Glenwood, Sec. 2, county highway No. 751, Erie County, 7.07 miles, to F. V. Brotsch Co., Rochester, \$94,000; Northville-North village, state highway No. 5065, Fulton County, 2.43 miles, to Delaware Cons. Co., Sidney, \$30,900, Bermudez; Middleville-Newport village, state highway No. 5064, Herkimer County, 1.57 miles, to Newport Construction Co., Newport, N. Y., \$16,900, residuum; Fultonville-Fonda village, county highway No. 864, Montgomery County, .90 miles, to John J. Vedder, \$21,738.98, residuum; other bidder, Mohawk Engr. & Contr. Co., Schenectady, \$19,026, residuum; Niagara Falls-Buffalo, Part 1, state highway No. 5063, Niagara County, 2.50 miles, to L. H. Gyp Construction Co., Buffalo, \$54,800; Whitesboro village, state highway No. 5059, Oneida County, 1.60 miles, to Warren Brothers Co., Boston, \$64,510.80, bitulithic; Scotts Corners-Burnside, county highway No. 414, Orange County, 5.54 miles, to Orange County Road Const. Co., Chester, \$26,500; Oak Orchard, Part 2, county highway No. 393, Orleans County, 3.61 miles, to Fred H. Rhooby & Frank S. Tyler, Albion, \$29,958.90, residuum; Malta-Saratoga, county highway No. 611, Saratoga County, 6.64 miles, to Corlear Contracting Co., Schenectady, \$78,690, residuum; Lake George village, county highway No. 843, Warren County, .17 mile, to C. J. Reardon, Glens Falls, \$2,126.87, Bermudez; Lake George village, State Highway No. 5068, Warren County, 1.48 miles, to C. J. Reardon, Glens Falls, \$24,202.31, residuum; Clyde Resort, Part 2, county highway No. 860, Wayne County, 3.48 miles, to Luddington & Roberts, Rochester, \$18,498; Dugway, Part 4, county highway No. 861, Wayne County, 1.98 miles, Town Board of Walworth, \$11,900; Mt. Kisco village, county highway No. 865, Westchester County, 3.01 miles, to Dunbar Contr. Co., New York, \$78,000, residuum.

Newport, N. Y.—Building connecting link through village, to Newport Construction Co.

Utica, N. Y.—Asphalt paving, Barber Asphalt Co., \$1.79 sq. yd.; 4 streets with natural or stone curb and 5 with artificial curb.

Utica, N. Y.—Paving Kent st. with Buffalo-Pittsburg brick, to Jas. W. Johnson, \$2,730.25.

Whitesboro, N. Y.—Improvement of Main st., to Warren Brothers, Boston, bitulithic pavement, 1.60 miles, \$64,510; bids were as follows: Bitulithic—Warren Brothers' Co., Boston, \$64,510.80; John R. Baxter, Jr., Utica, \$78,352; H. R. Baugart Co., Buffalo, \$70,000; Brick—Central City Paving Co., Syracuse, \$72,000; James W. Johnston, Utica, \$65,700; Frank L. Cohen, Buffalo, \$72,400; John R. Baxter, Utica, \$68,120; W. V. Bardol, Buffalo, \$73,000; Harry W. Roberts, Utica, \$67,870; H. R. Baugart Co., Buffalo, \$67,000.

Bathgate, N. D.—Laying 7,500 ft. cement sidewalks, Asylum for Blind, to Herman Campbell, of Cavalier.

Fargo, N. D.—Section A, creosote, \$2.69 per sq. yd.; section B, macadam, \$2.15; section C, creosote, \$3.

Akron, O.—Gale st. paving, to McShaffrey & Son; Borton, Dick, Metlin, Paige, Everett, Douglas and North Howard st. paving to corporation limits, to Wilds & Davidson; Steiner ave. and Getz st., McShaffrey & Son.

Akron, O.—Paving Howe st. to McShaffrey & Son, \$12,705.02.

Cincinnati, O.—Improvement of Olive ave. with wood block to Russell & Jennison, \$28,154.50.

Galena, O.—Paving Fulton pike to Mack Gledhill.

Mansfield, O.—West 4th st., paving roadway with Massillon brick, asphalt filler, to Gandert Bros., \$26,710.30; Sturges ave., Big Four brick, asphalt filler, to Gandert Bros., \$5,194.70; Foster st., Big Four brick, tar filler, to Herring & Sons, \$2,064.96; Franklin ave., Big Four brick, tar filler, to Herring & Sons, \$9,491.40; South Diamond st. extension, flagstone sidewalks on south side, to E. S. Getting & Bro., \$2,247.74.

Springfield, O.—City cement work, to Thos. E. Wren.

Oklahoma City, Okla.—Grading boulevard, to Bennett & Eckland, \$30,000.

Klamath Falls, Ore.—Bitulithic paving, to Warren Construction Co., \$2.25 per sq. yd.

Portland, Ore.—Grading one mile of boulevard between City Park and Macleay Park, to Giebish & Joplin, \$90,000.

Altoona, Pa.—Repairing paved streets to Bell-Bockel Stone Co: Metropolitan brick paving, with asphalt filler, \$5.07 per sq. yd.; with grout filler, \$2.87; macadamized blocks, \$2.85; macadam, \$1.30; cobble stone road, \$1.52; stone block paving, \$3.10; asphalt blocks, \$3.57; special brick paving, \$2.95; Bessemer, Penn. and Johnsonburg blocks, \$2.85.

Mechanicsburg, Pa.—Paving Main st with vitrified brick to Strucker Brothers' Construction Co., Harrisburg, \$1.97 per sq. yd.

Pittsburg, Pa.—Construction of Clifton and Bridgeville road, to Victor Construction Co., \$59,561.88; library extension No. 2 road, to Neelen & Daly, \$12,293.36.—R. J. Cunningham, Allegheny County Controller.

Reading, Pa.—Street improvement supplies, setting curbs, to Charles Smith, 6c. per ft. for new and 5½c. per ft. for old; re-laying sidewalks, to John K. Faust, 28c. per sq. yd. for old and 76c. per sq. yd. for new; cleaning catch basins, to John A. Rauen, at 31c. per basin; paving blocks, to Bessemer Limestone Company, Youngstown, O., \$23.50 per 1,000; gutter blocks, to John K. Faust, at \$17.20 per 1,000; sewer blocks, to John K. Faust, \$11.35 per 1,000; trap rock, to Charles H. Fisher, at \$1.20 per ton for spalls and \$1.20 per ton for screenings; lime stone, to John A. Whitman and McQuade Bros., 90c. per ton for spalls and 90c. per ton for screenings; cast iron, to Jacob S. Pfeiffer, 2½c. per lb; North River blue stone, to John K. Faust, 44c. per lin. ft. for 16 x 4; 49½c. per lin. ft. for 20 x 4, and 79c. per lin. ft. for 24 x 6; Belgian blocks, to John E. Weidner, \$55 per 1,000; Alpha Portland cement, to Charles H. Fisher, \$1.50 per bbl., with allowance of 7½c. per bag returned, making net price \$1.20 per bbl.; asphalt mixer, to Barber Asphalt Co., \$26.60; cement asphalt mixer, to Barber Asphalt Co., \$10.20.

Scranton, Pa.—Building trans-county road with Genasco, to John Harrigan, Sidney, N. Y., \$375,000.

Wilkes-Barre, Pa.—Paving road from Luzerne to Susquehanna County line, to John Harrigan, Sidney, N. Y., about \$375,000.

Memphis, Tenn.—Paving Neptune st. with asphalt to M. Larkin & Co., Memphis, \$22,450; Galloway ave., \$12,260.

Abilene, Tex.—Street paving to Texas Bitulithic Co., Dallas, \$150,000.

Abilene, Tex.—Paving, to Texas Bitulithic Co., \$45,297.

Johnston, Tex.—Constructing the Lynchburg and Crosby Road, to E. G. Smith, \$22,000.

Lynchburg, Va.—Macadamizing Campbell ave. to R. M. Pierce, Lynchburg, \$8,900.

Olympia, Wash.—Building State aid road 19-73, to Tinkers & Travers, \$15,365; road 72, to Harry Corenton, Challam Bay, about \$28,000.

Olympia, Wash.—Construction of State road, four miles, to Pierce County Commissioners.

Spokane, Wash.—Paving Sherman st. with granite, to R. S. Blome Co., Chicago, \$52,500.

Westmount, Que., Can.—Pavement and roadway construction as follows: Sherbrooke st., to Warner-Quinlan Co., \$85,776; Metcalf and four other streets, to Canadian Mineral and Rubber Co., Toronto, \$115,396.—A. D. Shibley, City Clerk.

Winnipeg, Man., Can.—Construction of asphalt pavements, to J. W. Astley, Engineer of Construction.

Mexico City, Mex.—Paving to Cia. Ban- caria de Fomento y Bienes Raices and the Cia. Mexicana De Pavimentos de Asfalto y Construcciones, S. A., 250 streets with asphalt.

BIDS RECEIVED

Albany, N. Y.—State road improvements: Ballston Spa-Ballston Lake State Highway 5062, Saratoga County, 2.74 miles—Delaware Contracting Co., Sidney, \$50,000 residuum, \$52,000 Bermudez, \$51,000 Trinidad; Thomas F. Shaughnessy, Albany, \$45,000 residuum, \$49,400 Bermudez, \$49,400 Trinidad; W. J.

Randall, Stillwater, \$9,366 residuum, \$52,420 Bermudez, \$51,730 Trinidad; J. B. Cunningham, Plattsburg, \$51,320 residuum, \$54,250 Bermudez, \$53,640 Trinidad; Corlear Cons. Co., Schenectady, \$49,458 residuum, \$51,000 Bermudez, \$50,486 Trinidad; John B. Dower, Ballston, \$42,600 residuum, \$45,350 Bermudez, \$45,000 Trinidad; F. V. E. Bardol, Buffalo, \$50,000 residuum, \$52,000 Bermudez, \$51,000 Trinidad; Thomas O'Hern, Yonkers, \$47,627.92 residuum, \$49,685.62 Bermudez, \$48,999.72 Trinidad; Homer village, State Highway 5058, Cortland County, 2.01 miles—Mulder Bros., Albany, \$48,670 residuum, \$48,689 Bermudez, \$48,670 Trinidad; C. H. Alken & Co., Rochester, \$52,700 residuum, \$52,900 Bermudez, \$52,800 Trinidad; E. D. Baker, Binghamton, \$51,212 residuum, \$51,817 Bermudez, \$51,690 Trinidad; F. V. E. Bardol, Buffalo, \$51,000 residuum, \$51,000 Bermudez, \$51,000 Trinidad; Delaware Cons. Co., Sidney, \$51,700 residuum, \$52,000 Bermudez, \$51,900 Trinidad; Central City Paving Co., Syracuse, \$50,500 residuum, \$50,560 Bermudez, \$50,530 Trinidad; Charles T. Hookway, Syracuse, \$48,949 residuum, \$49,000 Bermudez, \$49,000 Trinidad; S. P. Hull, Cortland, informal bid; Albert Caffey, Syracuse, \$48,800 residuum, \$49,000 Bermudez, \$48,900 Trinidad; F. V. E. Bardol, Buffalo, \$72,000 residuum, \$72,300 Bermudez, \$72,200 Trinidad; Albert Caffey, Syracuse, \$70,500 residuum, \$71,000 Bermudez, \$70,880 Trinidad.

Akron, O.—Paving: Spicer st., Matthew McCourt, with stone curbing \$11,120, cement curbing \$10,857, combined curbing and gutter \$11,651; Howe st., Matthew McCourt, stone curbing \$12,992, cement curbing \$11,622, combined curb and gutter \$12,836; Getz st., E. McShaffrey & Son, stone curb \$6,958, cement curbing \$6,556, combined curb and gutter \$7,151; Lake st., P. T. McCourt, stone curb \$17,067, cement curbing \$16,293, combined curb and gutter \$17,108; Campbell st., P. T. McCourt, stone curb \$9,733, cement curb \$9,537, combined curb and gutter \$9,738; Douglas st., Wildes & Davidson, stone curb \$15,217, cement curb \$14,357, combined curb and gutter \$14,330; Howard st., from Cuyahoga Falls ave. to North Corporation line, Wildes & Davidson, stone curb \$6,112, cement curb \$5,752, combined curb and gutter \$6,039; Gale st., McShaffrey & Sons, stone curb \$7,587, cement curb \$6,945, combined curb and gutter \$7,666.

Akron, O.—Improvement of one mile of road on S. Arlington st., Kelly & Markley, Pittsburg, lowest bidders, as follows: Vit. curb, \$15,551.90; con. curb, \$16,743.50, and on stone curbing, \$16,057.70; Engineer's estimate \$17,343.18.

Enid, Okla.—Sidewalk construction, 4½ miles: J. W. Cheney & Son, 10 2-5c. per sq. ft.; Burbank, 10½; Pelton, 11½; Kinzey and Heaney, 10 4-9.

Beaver, Pa.—Road work: John F. Howley & Co., 237 4th ave., Pittsburg, native stone bottom, \$17,316, Wampum limestone top; \$26,859, brick top; \$25,154, bit-macadam, top machine mixed; \$24,540 concrete macadam top. Standard Bitulithic Co., 253 Broadway, New York, local stone bottom, \$23,297, bit. macadam top, R. D. Hunter, city, local stone bottom, \$16,789, Wampum limestone top; \$23,298, brick top; \$20,878, bit-macadam or hand mixed; \$19,038, bit-macadam, penetration mixed; \$19,038, bit-macadam, penetration method; \$22,718, concrete macadam top. Rhinehart Bros., East Liverpool, O., local stone bottom, \$23,940, wire cut brick top, J. T. McGuire & Co., New Brighton, local stone bottom, \$15,858, Lowellville limestone top; \$27,512, bit-macadam, machine or hand mixed; \$26,899, bit-macadam penetration method; \$26,049, concrete macadam top; \$23,344, brick top. Ridge Bros. & Co., 407 4th ave., Pittsburg, native stone bottom, \$14,724; Lawrence or Beaver County limestone top; \$22,388, acceptable brick top; \$20,176, bit-macadam, machine or hand mixed; \$18,849; bit-macadam, penetration method; \$20,176, concrete macadam top.

Philadelphia, Pa.—Northeast Boulevard. McNichol Paving & Construction Co. only bidder, \$300,000 available; S. Broad st. Boulevard, E. N. Vare only bidder, \$400,000 available; repairing asphalt streets occupied by car tracks, Filbert Paving & Construction Co. and Mack Paving & Construction Co. only bidders; repairs to other streets occupied by car tracks, Mack Paving & Construction Co., Filbert Co., Cunningham Paving & Construction Co. and M. & J. B. McHugh, bidders; repairing macadam roads occupied by car tracks, Cunningham and Mack companies had Richard P. Ben- nis and M. & J. B. McHugh; Filbert and Barber companies were only competitors for asphalt repairs to non-traction streets; Mack and Cunningham companies were only bidders for repairs to non-traction streets paved with other material than asphalt; the McNichol Co., McHugh and Dan- iel S. Poder bid on grading on the Park- way and planting vines for the pergolas from Logan Square to Spring Garden st.

Pittsburg, Pa.—Construction of Clifton and Bridgeville road: Victor Construction Co., \$59,561.88; Donald McNeill, \$60,522.96; P. M. Ancoranni, \$62,192.25; James Nixon, \$62,819.56; Neelen & Daly, \$63,440.10; Jno. F. Howley & Co., \$65,628.15; Ott Bros. Co., \$71,144.86; Ridge Bros. Co., \$75,890.51; M. O'Herron Co., \$82,348.96. Library extension No. 2 road, Neelen & Daly, \$12,293.36; McLaughlin Contracting Co., \$14,734.22; Donald McNeill, \$14,815.51; Henry Hileman, \$15,032.05; W. E. Howley, \$15,689.70; A. G. Rothery, \$16,291.68. R. J. Cunningham, Allegheny County Controller.

Dallas, Tex.—Laying combination curb and gutter of concrete on Dickason, Dallas Paving Co., 58c. per ft.; grading Dickason ave., A. F. Moberly, 28c. per cu. yd.; E. L. Haralson, 40c. per cu. yd.; grading Jefferson st., A. F. Moberly, 35c. cut, 40c. fill; B. C. Doty, 27c. for cut or fill, if city to take the dirt, 24c.; William Moore and William Smith, 21½c. and the earth fills, 15c. per cu. yd.; all Jefferson st. contract, if haul is not to exceed three blocks, will be done at 30c. per cu. yd.; E. L. Haralson, 30c. cut, 45c. fill; Dallas Line & Gravel Co., 26½c. cut or fill.

Dallas, Tex.—Paving Reiger ave., Texas Bitulithic Co., for bitulithic pavement on concrete or bituminous base, \$2.22 to \$2.41 per sq. yd., according to stone used in surfacing, without maintenance, and \$2.30 to \$2.49 with five-year maintenance; curb and gutter, 65c. a ft. straight, or 75c. curved; Carroll, Texas Bitulithic Co.'s bid was the same; laying curbs and gutters in the same territory, the Dallas Paving Co. bid 58c. per ft. for combination curb and gutter and 38c. for straight curb and 30c. for straight gutter.

Seattle, Wash.—Paving Federal ave., with (a) sandstone, (b) granite: Independent Asphalt Paving Co., 3d ave. and Cherry st., Seattle, (a) \$158,689, (b) \$159,929; F. McLellan, Burke Bldg., Seattle (a) \$158,217 (b) \$159,209; Barber Asphalt Paving Co., White Bldg., Seattle, (a) \$166,123, (b) \$168,395; P. J. McHugh, Seattle, (a) \$169,370, (b) \$170,610.

Watertown, Wis.—Paving 5th st., Sweetney Bros., Reedsburg, \$23,617.70; Ross & Lehmann, city, \$21,828.42, and E. L. Bartlett, city, \$20,703.62.

SEWERAGE

Foley, Ala.—Citizens are securing estimates on sewer system to be connected with Wolf Creek.

Chico, Cal.—Citizens have voted \$35,000 bonds for construction of storm water sewers.

Covina, Cal.—Plans are being prepared by Engineer Vessery, Union Trust Bldg., Los Angeles, for a sewer system and disposal plant.

Ventura, Cal.—Olmstead & Gillelan, Wright & Callender Bldg., Los Angeles, will prepare plans for a sewer system.

Denver, Col.—Board of Public Works is considering construction of sub-sanitary sewer district No. 10.

Ansonia, Conn.—Bids will be received June 27 for \$35,000 sewer bonds.

White Springs, Fla.—Council is considering calling election July 12 on \$45,000 bonds to install sewerage and water works.

College Park, Ga.—Citizens have voted \$65,000 sewerage, water works and electric light bonds.

Dalton, Ga.—City has selected H. S. Jaudon Engineering Co., Savannah, as engineer in charge of extension of sewer system; cost \$20,000.—Paul B. Trammell, Mayor.

Savannah, Ga.—Chatham County Commissioners have authorized construction of rein. concrete drain in De Renne Canal; cost \$20,000.

Pocatello, Ida.—Citizens will vote June 28 on \$164,788 bonds, to install modern sewer system.

Bloomington, Ill.—Council has passed an ordinance creating Miller Park district sanitary sewer system; cost \$12,989.

Chicago Heights, Ill.—Council has passed ordinance providing for construction of storm water sewer system, No. 3, on East Side.

Greenville, Ill.—Plans have been completed by Engineer Deutchman, Belleville, for proposed sewer system; cost, \$53,000.

Peoria, Ill.—Board of Public Improvement is considering building of Second District sewer; estimated cost \$42,394.

Gary, Ind.—Engineer A. P. Melton is preparing plans for sewer to be constructed between Massachusetts and Connecticut sts.

Vincennes, Ind.—Hering & Fuller, of New York, N. Y., have completed plans for the proposed system of storm and sanitary sewers.—Jas. D. McDowell, Mayor.

Corydon, Ia.—City has selected Iowa Engineering Co., Clinton, to supervise construction of sewer system.

Nickerson, Kan.—Dunkin & Fox, of Hutchinson, will prepare plans for sanitary sewer system.

Centerville, Md.—Citizens have voted bonds for construction of sewer system.

Lawrence, Mass.—Committee on Streets has recommended use of Hannagan catch basins on all paved streets.

Lowell, Mass.—Construction of sewer, cost \$1,100, on White st., and sewers on three streets, cost \$7,700, is being considered.

Somerville, Mass.—City has sold \$30,000 sewer bonds to N. W. Harris & Co. at \$100.317.

Niles, Mich.—Council has approved the plans and specifications for construction of a sewer on Broadway st.

Sault Ste. Marie, Mich.—City proposes to construct sewers; cost \$30,000.—C. McIlhargie, City Engineer.

De Soto, Mo.—City proposes to construct sewer.—Ward Cunningham, Mayor.

Springfield, Mo.—Council has adopted plans for sewer to be constructed in Sewer District 3, section 6.

Springfield, Mo.—City proposes to construct septic tank at mouth of the city sewer, on south side; daily capacity, 3,000,000 gal.—H. G. Horton, City Engineer.

Glasgow, Mont.—Installation of sewer system is being considered.

Polson, Mont.—City is considering bond issue for construction of sewer system.

Crete, Neb.—Citizens have voted \$40,000 bonds for installation of sewerage system.

Gloversville, N. Y.—City has sold \$20,000 sewer bonds.

Little Falls, N. Y.—City Engineer A. H. Dempster has estimated cost of laying sewer and water mains under barge canal at about \$4,100.

Utica, N. Y.—City Engineer Cogley has prepared plans for vit. pipe sewer on Pleasant st.

Ashboro, N. C.—City will expend \$50,000 to construct sewerage and water works systems.

Carrington, N. D.—L. P. Wolff, St. Paul, Minn., has completed plans for proposed sewer system.

Minot, N. D.—City Engineer Thomas is preparing plans for sewer system on North Side including about 3 miles of pipe.

Cincinnati, O.—Establishment of new sewerage system is being urged.

Jefferson, O.—Bids will be received about July 1 for construction of sewers.—F. M. Miller, Village Clerk.

Niles, O.—City has sold \$1,437.30 sewer bonds to Citizens National Bank of Wooster.

Pleasant Ridge, O.—Council is considering constructing a sewerage system and disposal plant; cost, \$78,000.—H. B. Hayden, City Clerk.

Upper Sandusky, O.—City is considering election on \$5,000 bonds for construction of Warple st. sewer.

Wooster, O.—Bids will soon be received by S. E. Smith, Director of Public Service, for about 1,000 ft. of sewer extension in Quimby ave.—J. W. Atkinson, City Engineer.

Zanesville, O.—City has sold \$27,000 sewer bonds to Rudolph Kleybolte Co., Cincinnati, at \$27.425.

Cherokee, Okla.—City has selected Burns & McDonnell, Kansas City, Mo., as engineers in charge of completion of sewerage system.

Woodward, Okla.—Installation of sewer system is being considered.

Pittsburg, Pa.—Council is considering construction of sewer on Wallace st.

Timmons ville, S. C.—City has selected J. N. Johnston, Florence, to prepare plans and estimates for sewerage system and water works; cost \$45,000.

Dallas, Tex.—Bids will be asked for laying 6-in. sanitary sewer on Reagan st.

Davenport, Wash.—O. A. Wiele, Spokane, is preparing plans for proposed sewers; cost, \$10,000.—Lee Odgers, City Clerk.

Tacoma, Wash.—Bids will be received June 25, 11 a. m., for \$100,000 surface water drainage bonds.—A. V. Fawcett, Mayor.

Tacoma, Wash.—City Engineer W. C. Raleigh has prepared plans for first of three sewer water drainage districts; cost, \$25,225.

Natal, Rio Grande de Norte, Brazil.—State has sold about \$2,000,000 bonds for construction of sewerage and other public works.

Edmonton, Alta., Can.—Alexander Potter, C. E., of New York, has been employed to prepare report on sewage disposal in Strathcona and this city.

Esquimalt, B. C., Can.—Construction of sewerage system is being considered; cost \$50,000.—Dr. C. J. Fagain, Provincial Health Officer.

Peterborough, Ont., Can.—Citizens have passed by-law to authorize expenditure of \$30,000 for sewerage facilities in southwestern portion of city.

North Bay, Ont., Can.—Council has passed a by-law to issue \$65,835 debentures for sewerage system.

Point Grey, B. C., Can.—City is considering \$600,000 expenditure on sewer and other improvements.

CONTRACTS AWARDED

Trinidad, Col.—Construction 12-in. sewer on Cedar st. to Rowland Plumbing Co., \$1.52 per lin. ft. for excavations; "Y's," \$2.05, and manholes complete, \$60; total, \$525.80.

Woodstock, Ill.—Septic tank to Logan & Gertz, Elgin, \$3,000.

Elgin, Ill.—Sewers to Logan & Gertz, Fifth Ward, \$83,400; Vill st., \$5,458.95.

Gary, Ind.—Sewer, to J. J. Hayne, \$6,303.

Coffeyville, Kan.—Sewer, to Stanton & McGuire Construction Co., \$2,357.

Hutchinson Kan.—Sewer and water extension, to L. W. Schuth, Fargo, N. D., \$4,106.

Osage City, Kan.—Sanitary sewers and disposal plant, to R. J. & W. M. Boyd Construction Co., Kansas City, Kan., \$41,000.

Hartford, Ky.—Sewer system, etc., to Frank May, city, \$13,014.

Monroe, Mich.—Sanitary sewer, to Geo. H. Beisel, \$1,600.

Kirksville, Mo.—Sewers, to E. Maize, District No. 62; to Frank W. Russell, District No. 63; to Andrew Hanson, District No. 64.

St. Louis, Mo.—River des Pierre sewer, to McCarthy Bros., Cincinnati, O., \$1,978,400.

Akron, O.—Lake st. sewer, to Wilds & Davidson, \$1,552.60; Kenyon st., to M. H. O'Toole, \$404.75; Raymon st., to M. H. O'Toole, \$1,393.60.

Belleville, O.—South Main sewer, to Frank S. Mitchell, city, \$32,882.

Galion, O.—Sewage disposal plant, to U. S. Construction Co., Columbus, O., \$27,196.28; other bidders, P. Drake & Sons, \$32,375.95, and L. P. Battefeld, Bucyrus, \$28,158.17.

Springfield, O.—Sewers: High and Bell aves., \$1,859.20; Mulberry av., \$1,433.08 and Jefferson st., \$1,515.75, to M. J. Cooney; four aves., to Huonker & Williams, \$2,954.05.

Dorranceton, Pa.—Sewers, to R. M. Rosser, Kingston.

Dallas, Tex.—Storm sewer on Hall st., to J. B. Winslett, Jr., Co., \$1,477.80.

Seattle, Wash.—Construction of sewers: Lakeview ave. and other streets, to George W. Walker, \$19,388; 3d ave., N. W., and other streets, to J. Rube, \$11,821.

Toronto, Ont., Can.—Centrifugal pumps and electric motors for Sunnyside sewerage system, to Allis-Chalmers-Bullock, Ltd., Montreal, \$3,215.

Victoria, B. C., Can.—Supply and erection of Volute sewage pump electric motor and automatic starter, to Hutcheson Bros. & Co., Ltd., \$885 each.

Montreal, Que., Can.—Sewers as follows: Trunk sewer in Laurier Ward, to L. Giguere & Co., \$115,655, for No. 3 section of Sherbrooke st. sewer, to M. Dideen, \$43,730.

BIDS RECEIVED

Brooklyn, N. Y.—Furnishing material and constructing sewers in Malta st., Fairfield and Van Sicken aves, bids received on percentage basis, Engineer's estimate, \$70,665; Thos. G. Carlin, Inc., city, 144½ per cent; Jas. H. Holmes, Brooklyn, 144 per cent; Chester A. Dady, city, 177 per cent; Newman & Carey, city, 144.65 per cent; Donegan & Redmond, city, 149 per cent; Merrill-Ruckgaber Co., city, 144 per cent, and Hagerty & Drummond, 41 Park Row, N. Y. city, 158 per cent.

WATER SUPPLY

Anniston, Ala.—Citizens will vote June 28 on \$100,000 bonds to purchase plant of Anniston Water Supply Co.

Foley, Ala.—Citizens are securing estimates on installation of water plant.

Conway, Ark.—City will expend about \$35,000 to construct water works system; will install water station, tank, mains, etc.; Dixon-Smith Engineering Co., St. Louis, Mo., Engineer in Charge.

Dixon, Cal.—Pacific Gas & Electric Co. will soon begin the installation of a water system at Davis with double tanks.

Alamosa, Col.—City has selected Sethman & Co., Consulting Engineers, Denver, to prepare plans for proposed water works improvements.

Colorado Springs, Col.—Council has rejected all bids for laying water pipes in Arensdale; city is considering laying of same.

Kersey, Col.—Council has granted franchise to W. F. Murphy, Denver, to construct and operate water works system.

Limon, Col.—City is considering installation of water works system.

Pueblo, Col.—Committee is investigating source of mountain supply, underflow water and advisability of filtering Arkansas water.

Fort Meyers, Fla.—City is considering bond issue for construction of water works.

Graceville, Fla.—Citizens have voted \$14,000 water works bonds.

Orlando, Fla.—Cost of installation of water works has been estimated at about \$100,000.—J. O. Freis, Engineer.

Port Tampa City, Fla.—Council is considering \$25,000 bond issue for water works.

White Springs, Fla.—Council is considering calling election July 12 on \$45,000 bonds to install water works and sewerage.

College Park, Ga.—Citizens have voted \$65,000 water works, sewerage and electric light bonds.

Dalton, Ga.—City has selected H. S. Jaudon Engineering Co., Savannah, as engineer in charge of water works improvements; cost \$30,000.—Paul B. Trammell, Mayor.

Sparta, Ga.—City proposes to construct water works at a cost of \$40,000; engineer not yet selected.—John D. Walker, Mayor.

East Dundee, Ill.—Village will vote July 5 on \$4,000 bonds for water main extensions.

Herrin, Ill.—This place and Cartersville are planning erection of joint reservoir.

Le Mars, Ia.—Extension of water mains on number of streets is being considered.

Mount Ayr, Ia.—City has employed consulting engineer to prepare plans for installation of water works system.

Mount Vernon, Ia.—City is considering construction of reservoir.

Rippey, Ia.—Citizens have voted to issue \$7,000 bonds for the construction of water works.

Union City, Ia.—Council is considering improvement of the water system.

Greenfield, Mass.—Town has appropriated \$75,000 for construction of reservoir on Rocky Mountain; Wm. S. Johnson, of Boston, has recommended construction of an underground concrete reservoir with a capacity of 2,500,000 gals., at \$29,480, and a pipe line to cost \$37,070.

Holyoke, Mass.—Water Board has voted to lay 6-in. water main in Coit st. and 4-in. main in Yale st.

Palmer, Mass.—City will lay 2,000 ft. of water mains and set several hydrants.

Eaton Rapids, Mich.—City will improve water plant; boilers and other equipment will be installed.

Hartford, Mich.—City is considering construction of 80,000-gal. reservoir at water works station and laying of pipe line to supplying springs.

Marquette, Mich.—Citizens have voted \$75,000 bonds to extend water works intake pipe further into Lake Superior.

Janesville, Minn.—Citizens will vote on bonds for extension of water mains.

Minneapolis, Minn.—City Engineer Andrew Rinker has recommended raising of one of city's reservoirs in construction of mechanical filter; cost, \$30,000.

Virginia, Minn.—Council will consider improvements to water supply.

Moberly, Mo.—City is considering following improvements to water works system: erection of brick stack and power house, installation of 200,000-gal. pumping engine, two direct-connected 100-kw. generators, tandem coupler or 4-valve engine, three tubular boilers, switchboards, feed-water heater, purifier, one deep-well equipment complete and deep-well head, all motor driven.—L. G. Knapp & Co., New York Life Bldg., Kansas City, Mo., Engineers.

Slater, Mo.—Citizens have voted \$27,500 bonds to rebuild water works and electric light plant; water pipes will be extended.—Burns & McDonnell, Scarritt Bldg., Kansas City, Engineers; L. E. Shepherd, Superintendent.

Cranford, N. J.—Citizens will consider municipal ownership of water plant.

Long Branch, N. J.—Ocean Township Committee is considering granting franchise to Ocean Township Water Co. to lay mains.

Barker, N. Y.—Installation of municipal water system is being considered.

Belfast, N. Y.—Plans and specifications are being prepared by C. W. Brown, Corning, for installation of water plant.

Binghamton, N. Y.—Board of Water Commissioners will ask bids in two months for construction of reservoir; cost \$150,000.

Buffalo, N. Y.—Council has authorized \$500,000 bond issue to carry on construction work in Water Bureau.

Geneva, N. Y.—Engineer Walter S. Johnson, Boston, Mass., has recommended enlargement of water system by installing 20-in. main, filtration plant, reservoir and sewage disposal plant; cost \$166,600.

Little Falls, N. Y.—City Engineer A. N. Dempster has estimated cost of laying water and sewer mains under barge canal at about \$4,100.

Ashboro, N. C.—City will expend about \$50,000 to construct water works and sewerage plants; will erect power and pump houses, reservoir and elevated tank.—J. B. McCrary & Co., Atlanta, Ga., Engineers-in-Charge; H. M. Worth, Mayor.

Andover, O.—Citizens have voted to issue \$24,000 bonds for the construction of water works.—L. E. Chapin, Canton, Engineer.

Newport, O.—Plans have been completed by Surveyor Boyd Root for proposed reservoir to be constructed on grounds of Campbell County infirmary; cost, \$1,000.

Sandusky, O.—City Engineer Smith has prepared plans for water main extensions, costing \$3,000.

Arapaho, Okla.—City is considering installation of water works and electric light plant; will vote on bond issue; O'Neil Engineering Co., Dallas, Tex., preparing plans.—M. C. Main, Mayor.

Cherokee, Okla.—City has selected Burns & McDonnell, Kansas City, Mo., as engineers in charge of completion of water works system.

Woodward, Okla.—City is considering \$35,000 expenditure in making extensions to water system.

Eugene, Ore.—Bids will be received June 27, 7.30 p. m., for \$60,000 water improvement bonds.—R. S. Bryson, City Recorder.

Grants Pass, Ore.—Storage reservoir will be erected at head of Applegate River.

Salem, Ore.—J. W. Whistler, Consulting Engineer, has recommended that gravity system be constructed on Little North Fork of Santiam River with filter plant.

Clifton Heights, Pa.—Council has decided to increase indebtedness \$120,000 for water, lights and highways.

Timmonsville, S. C.—J. Newton Johnston, Florence, will prepare plans for water works and a sewer system; prices on tower, tanks, steam pumps and motor-driven pumps desired.

Knoxville, Tenn.—Water Commission will install meters in all houses to which new extensions are being made and where flat rate is now used.

McKenzie, Tenn.—Citizens have \$20,000 of bonds for extension of water works and street paving.—J. D. Herron, Mayor.

Del Rio, Tex.—Del Rio Water Co. is considering construction of 1,000,000-gal. concrete reservoir or steel standpipe.

El Paso, Tex.—Council has approved plans to build fireproof pumping station for Water Co.

Terrell, Tex.—Citizens have voted \$8,000 bonds for improvement of water works and electric light system.

Timpson, Tex.—Council is considering election on \$15,000 bonds for system of water works.

Gunnison, Utah.—Engineer Lyman has submitted estimates for construction of proposed water system.

Murray, Utah.—Engineer G. T. Ingersoll, Salt Lake, has prepared plans for water and power development; development of the water supply will be made by means of artesian wells; storage reservoir of 75,000 gals. capacity will be built, and 50,000-gal. steel tank, on tower 100 ft. high, will be constructed; turbine pump will be used to force water into tank; estimated minimum cost \$51,255.

Provo, Utah.—City Engineer Jacobs has been instructed to make preliminary survey for proposed water works improvements; \$90,000 bonds have been voted.

Richmond, Va.—Superintendent of Water Works has recommended improvements to water works, costing \$8,000, including enlargement of pumping station at standpipe and installation of centrifugal pump.

Spokane, Wash.—East side manufacturing concerns have petitioned Council for extension of more city water mains to East Spokane.

Sutton, Wash.—Citizens have voted bonds for installation of water works.

Tacoma, Wash.—Bids will soon be received for construction of storage reservoir at La Grande.—Nicholas Lawson, Commissioner of Light and Water.

Yacolt, Wash.—Citizens have voted \$6,000 bonds for the construction of water works; water will be piped from Big Creek Falls; distance, about 1½ miles.

Fairmont, W. Va.—City will expend \$75,000 to improve water works system, including construction of new lines moving of pump station and bridge; S. B. Miller, resident engineer.—A. G. Martin, Mayor.

Williamson, W. Va.—Plans are being prepared for installation of modern water system.

Appleton, Wis.—Appleton Water Works Co. will reconstruct plant.

Galt, Ont., Can.—Citizens have voted \$5,000 bonds for water extensions.

La Crosse, Wis.—E. C. Harper, Kansas City water expert, will visit city to investigate water situation; administration seeks to put through a deal for new \$200,000 water system and sedimentation basin.—O. J. Sorensen, Mayor.

Riverside, Wyo.—Citizens have voted to install water system.—J. W. Winner, Mayor.

Claresholm, Alta., Can.—Citizens have passed \$15,000 water works by-law.

Coldwater, Ont., Can.—Citizens have authorized expenditure of \$23,000 for installation of gravity system of water works.

Welland, Ont., Can.—Ratepayers will vote June 27 on following by-laws: \$60,000 for water works extension, \$5,000 for fire alarm system, and \$10,000 for east end sewer.

CONTRACTS AWARDED

New Britain, Conn.—Pipe line for high service pressure to Bernardino Sylvestre Conti, Hartford, about \$8,000.

Steger, Ill.—Construction of combined system of water supply mains with necessary hydrants, to J. E. Pickens, Kankakee, \$18,950.

Bloomington, Ind.—Constructing dam, University of Indiana, to Norris Defrees & Son, Indianapolis, and reservoir to J. A. Pike, Bloomington.

Calumet, Mich.—Furnishing, laying pipe and installing fire hydrants, to L. Bartlett & Co., Virginia; pumping machinery, to same firm, artesian, \$1,269.60; other bidders, A. C. Schirmer Co., Hibbing, \$12,754; Pastoret & Lawrence, Duluth, \$13,241.

Detroit, Mich.—Fairview pumping station, to Carey Construction Co., \$135,520.

Hancock, Mich.—Building concrete reservoir to Wick, O'Connell & Co., \$10,302.91.

Newark, N. J.—Cast-iron water pipe as follows: 6 and 16-in. high-pressure pipe to United States Cast Iron Pipe & Foundry Co. of New York, \$11,447.10, on estimated quantity; 4 and 12-in. pipe to Standard Cast Iron Pipe and Foundry Co., Bristol, Pa., \$22,062.50, on estimated quantity.

Perth Amboy, N. J.—Furnishing two 200-h.p., 175-lb. steam pressure, water tube boilers, to Heine Safety Boiler Co.

Asheville, N. C.—Waterproofing 5,000,000-gal. concrete reservoir; total surface of 36,000 sq. yds. on inside of reservoir, to E. T. Sexton, New York, \$5,000.

Chester, S. C.—Furnishing and installing filters to Roberts Filter Manufacturing Co., Philadelphia, Pa., \$3,300.

Milwaukee, Wis.—Installation of feeder main to R. J. Hickey, \$23,657.

BIDS RECEIVED

Ft. Stevens, Ore.—Construction of five rein. concrete water tanks as follows: Guire & Jamieson, Astoria, \$3,550; E. Gustafson, Astoria, \$3,612, and Newport Engr. Co., \$5,250.

LIGHTING AND POWER

Birmingham, Ala.—Providence Oil and Gas Co. will request Council to grant franchise for pipe line into city.—Dr. G. B. Crowe, President.

Cuba, Ala.—Mayor L. Poole is interested in plan to build water power electrical plant.

Geneva, Ala.—Geneva & Enterprise Traction Co. is considering construction of power plant on Double Bridge Creek.

Bakersfield, Cal.—Power, Transit and Light Co. is considering extensive additions and improvements to Kern River power plant in near future.

Oroville, Cal.—Oro Water & Light Co. will at once erect \$15,000 gas tank.

Whittier, Cal.—Board of Trustees has decided to employ engineer to report on cost of erecting plants to supply both electricity and gas.

Kersey, Col.—W. F. Murphy, Denver, has been granted franchise to construct and operate electric light system.

Graceville, Fla.—Citizens have voted \$4,000 electric light bonds.

Milton, Fla.—City has had plans prepared by Solomon-Norcross Co., Atlanta, Ga., for electric light plant; estimated cost \$40,000.—H. W. Clark, Mayor.

Orlando, Fla.—Construction of electric light plant is being considered.—C. A. Boone, City Clerk.

Abbeville, Ga.—M. C. Paxson will purchase dynamo, small gasoline engine and two or three ceiling fans.

Augusta, Ga.—Augusta-Aiken Railway Co. will enlarge power plant.—J. R. League, General Manager.

College Park, Ga.—Citizens have voted \$65,000 electric light, water works and sewerage bonds.

Dublin, Ga.—City proposes to expend \$10,000 in improvements to light and water works, including new engine and dynamo.

Bancroft, Ida.—Hyrum Call is interested in erection of light plant.

Freeport, Ill.—Stephenson County Light & Power Co. is considering bond issue for erection of power plant.

Kankakee, Ill.—Kelsey, Brewer & Co., Grand Rapids, Mich., have acquired the property and franchises of Kankakee Electric Light Co.; improvements and extensions are proposed.

Pana, Ill.—Promoters of Pana-Decatur Interurban line are looking for site for erection of proposed power station.

Logansport, Ind.—General Electric Co., of Chicago, Ill., has submitted to Board of Public Works plans for erection of a power plant.

Canton, Kan.—Citizens will soon vote on \$30,000 bonds for construction of a system of electric lights and water works; J. S. Worley Co., Reliance Bldg., Kansas City, Engrs.—C. M. Gray, City Clerk.

Coldwater, Kan.—Plans are being prepared

pared by Engineers J. S. Worley Co., Reliance Bldg., Kansas City, Mo., for a system of electric lights and water works.—W. F. Baker, City Clerk.

Newton, Kan.—Electric Light and Power Co. is considering installation of another unit.

Jennings, La.—Jennings Electric Light & Power Co. is considering installation of engine-driven alternating current generator.

Salem, Mass.—Salem Electric Light Co. has applied to State Board of Gas and Electric Light Commissioners for authority to issue \$250,000 in additional capital stock for new construction, extensions and improvements.

Albert Lea, Minn.—City is considering installation of ornamental curb lights on Main st.

Brainerd, Minn.—Water and Light Board has engaged Engineer A. C. Clausen, of St. Paul, to submit estimates for installation of complete electric plant to furnish current for city system.

Duluth, Minn.—Cost of installing "White Way" on W. Superior st. has been estimated at about \$3,500.

Fergus Falls, Minn.—City Light and Water Commission will recommend improvements to municipal electric lighting system.

Minneapolis, Minn.—Council Gas Committee is considering rejection of bids for proposed lights on steel arch and stone arch bridges.

Owatonna, Minn.—A. L. Ober, of Chatfield, has applied for electric light franchise.

Robbinsdale, Minn.—Plans are being prepared for installation of electric light system.

West St. Paul, Minn.—South St. Paul Light, Heat and Power Co. has been granted franchise for furnishing electric power to city.

Sheridan, Mont.—O. B. Preston, of St. Johns, Mich., is considering establishing electric power plant.

Malden, Mo.—Plans are being prepared by Engineers Archer, Rollins & Co., Beals Bldg., Kansas City, Mo., for system of electric lights and water works.

Slater, Mo.—Citizens have voted \$27,500 bonds to rebuild electric light and water works plant; electric lines will be extended.—Burns & McDonnell, Scarritt Bldg., Kansas City, Engineers; L. E. Shepherd, Engineer.

Tipton, Mo.—Citizens have voted \$17,500 bonds for electric light and power plant.—Jos. Sommerhauser, City Clerk.

Englewood, N. J.—City has under consideration adoption of lighting plant similar to that of Denver.—C. S. Loder, Chairman Publicity Committee.

Trenton, N. J.—Lamp Committee will soon designate location of score of new lights intended for recently improved sections of city.

Lockport, N. Y.—Aldermen are discussing idea of placing arches of tungsten lamps across Main st. to take place of present arc-light system.

Montgomery, N. Y.—Newburgh Light, Heat & Power Co. will ask Village Trustees for franchise; wires will be run from Wallkill. Address Manager Beugler, Electrical Department, Newburgh.

Devil's Lake, N. D.—Council has appointed committee to consider installation of "White Way" system of street lighting.

Clifton Heights, Pa.—Borough will increase indebtedness \$120,000 for lights, water and highways.

Franklin, Pa.—Council is considering installation of lamps of new design.

Greer, S. C.—Greer Light & Power Co., \$25,000 capital stock, has secured 10-year franchise.—Z. V. Taylor, Greensboro, N. C., is interested.

Livingston, Tenn.—Livingston Light & Power Co. has been incorporated, \$15,000 capital stock, by H. E. Speyer, F. E. Bracey, D. W. Harmon, W. H. Estes and M. H. Hankins, to develop water power for generating electricity.

Coleman, Tex.—Citizens will vote June 11 on \$20,000 bonds for construction of electric light plant.

Conway, Tex.—T. M. Wright, Wicomico, Va., will establish plant and furnish power and electric lighting to Conway, Panhandle and Claude.

Terrell, Tex.—Citizens have voted \$8,000 bonds for improvements to electric light and water works systems, including brick power house.

Murray, Utah.—Engineer G. T. Ingersoll, Salt Lake City, has estimated cost of proposed power and water development at minimum cost of \$51,255; turbine pump will be used.

Provo, Utah.—Citizens have voted \$110,000 bonds for municipal lighting plant.

Salt Lake City, Utah.—Utah Light & Railway Co. will erect \$27,000 substation at Highway 66 and State road.

Suffolk, Va.—Franklin Council has decided to spend \$2,500 in enlarging electric light plant.

Burlington, Vt.—Burlington Light & Power Co. has decided to erect large building at the Gorge, and install a 1,000-kw. steam turbine power plant.—F. N. Parker, Manager.

Greenacres, Wash.—Inland Empire Railroad Co. has made application to County Commissioners for authority to construct and operate pole lines and transmission wires along streets in town.

Tacoma, Wash.—Bids will soon be advertised for erection of substation of Nisqually power plant to be built at S. 25th and C sts.—Nicholas Lawson, Light and Water Commissioner.

Merrill, Wis.—Merrill Electric Light Co. will expend \$5,000 in improving service during summer.

Milwaukee, Wis.—Alderman A. E. Braun is interested in proposed erection of independent power plant to furnish heat and light for various public buildings.

Estevan, Sask., Can.—Site for municipal electric light plant has been purchased.

Farnham, Que., Can.—Ratepayers have approved by-law to raise \$100,000 for erection of dam and for general power development work.

Moose Jaw, Sask., Can.—Ratepayers will vote June 17 on \$100,000 by-law; \$35,000 will be used in extension of electric light system.

Renfrew, Ont., Can.—By-law to raise \$82,000 for water power development has been passed.

Victoria, B. C., Can.—City will shortly call for tenders for 50 additional arc lights; cost about \$3,500.

CONTRACTS AWARDED

Fort Barrancas, Fla.—Lighting system, to McCay Engineering Co., Baltimore, Md., \$18,143.

Beverly, N. J.—Lighting city, renewal, to M. B. Perkins, receiver of Cinnaminson Electric Light Co., of Riverton, \$3,200 per year.

New Concord, O.—Construction of electric light plant, to Fairbanks & Morrison, Columbus, \$10,200.

Rice Lake, Wis.—Furnishing power and superintending municipal lighting system to Red Cedar Valley Electric Co.

Victoria, B. C., Can.—Supplying ornamental pillars and fittings for new street lights on Douglas st., to Hutchison Bros., \$54 each.

FIRE EQUIPMENT

Chico, Cal.—Citizens have voted \$10,000 bonds to purchase chemical engine and additional fire equipment.

Sunnyvale, Cal.—Citizens will vote on bonds for establishment and equipment of fire department.

Willimantic, Conn.—Combination hose and chemical wagon will be purchased for Hilltop Co.

Wilmington, Del.—Special Apparatus Committee, Waber Welch Fire Co., will soon make report.

Bloomington, Ill.—Chief Henry Mayer has recommended repairing two steamers, cost \$1,500; overhauling service truck and equipping it with automatic, quick-raising device, and purchase of automobile fire apparatus.

Chicago, Ill.—Fire Chief Jas. Horan has recommended improvements to fire department in South Chicago.

De Kalb, Ill.—Fire Board has recommended installation of fire alarm boxes.—Thos. Adams, Chief.

Morningside, Ill.—Village is considering purchase of chemical auto.

Normal, Ill.—Fire Committee is considering installation of fire alarm system.—E. C. Buck, Chairman.

Elkhart, Ind.—City is considering purchase of steam fire engine. Address Fire Chief Leader.

Lafayette, Ind.—Purchase of auto truck is being considered by Council.

Cherokee, Ia.—Purchase of chemical engine is under consideration.

Webster City, Ia.—Purchasing and Fire Committees of Council are considering purchase of 1,000 ft. of fire hose.

Danvers, Mass.—Town will vote on \$840 appropriation for purchase of fire hose.

Lowell, Mass.—Board of Aldermen has passed order to provide \$3,200 for Warren Street engine house.

New Bedford, Mass.—Committee on City Property will ask for bids for 800 ft. of hose for almshouse.

Caledonia, Minn.—Fire Commissioners will purchase hose wagon in July.—Jos. Vossen, President.

Comfrey, Minn.—Council will purchase 300 ft. of hose; purchase of ladders, axes and fire hook has been authorized.

Foley, Minn.—Bids will be advertised for 6-cylinder, 10 h. p. gasoline engine and 1200 ft. of hose.

North Branch, Minn.—City proposes to install electric fire alarm system.—Chas. Eckstrand, Chief.

St. Paul, Minn.—Bids will be received June 14 for furnishing a second-size steam fire engine.—W. O'Gorman, Secretary, Fire Board.

Kansas City, Mo.—Fire Chief John C. Egner has recommended purchase of sites and erection of several new stations; construction of public fire cisterns in different parts of the city, installation of a reliable street box fire alarm system, and equipping proposed fire station at 63d street and Troost avenue with an auto combination wagon.

St. Louis, Mo.—Plans have been prepared for erection of proposed auto engine house.—C. E. Ewingsley, Chief.

Uehling, Neb.—Organization of fire department has been effected, with A. M. Armstead as Chief.

Morristown, N. J.—Relief Engine Co. is having plans prepared for erection of \$4,000 engine house.

Passaic, N. J.—National Board of Fire Underwriters has recommended erection of new station for Co. No. 1; establishment of hose company provided with combination wagon; providing each station not so equipped with hose-tower for drying hose; purchase of additional hose; that each engine be equipped with a compound gauge and a 4½-in. flexible suction; that each hose wagon be provided with a plaster hook, siamese coupling, door-opener, one 25-ft. extension ladder and a burst hose jacket; that each ladder company be provided with modern cellar pipe, 2 pomper ladders, hose roller set, marine torch, ropes, rope gun, waterproof covers; also minor improvements.

Plainfield, N. J.—Mayor Fisk has decided to recommend installation of five new fire alarm boxes and about 30 additional fire hydrants throughout the city.—T. O. Doane, Chief.

West New York, N. J.—Fulton Hook & Ladder Co., No. 3, will purchase second-hand hook and ladder truck either hand or horse propelled.—M. A. Waldherr, 419 12th st., Secretary.

Castile, N. Y.—H. A. Pierce Hook & Ladder Co. is securing funds to purchase chemical engine.

Dayton, O.—Fire Chief Ramby is urging either erection of new engine house or addition to engine house at 5th and Baxter sts.

Hamilton, O.—Board of Control has rejected all bids for purchase of aerial ladder truck.

Uricksville, O.—Bids will soon be asked for furnishing comb. chem. engine and hose wagon.

Klamath Falls, Ore.—Citizens have voted \$20,000 bonds to erect firemen's headquarters and city hall and pay for two garbage sites.

Portland, Ore.—City will expend \$30,000 for purchase of apparatus; automobile trucks for hose and chemical wagons favored.

Larksville, Pa.—Architect James A. Boyle, Kingston, is preparing plans for fire department headquarters.—Wm. Kelly, Chairman Building Committee.

Wilkes-Barre, Pa.—Specifications will be prepared and bids asked for rebuilding No. 9 fire engine.

Memphis, Tenn.—Architect John Galsford, 309 Royal Bldg., is preparing plans for two suburban fire stations and one police station for patrol; City Commissioner Speed is interested.

Dallas, Tex.—Bids will be asked by City Secretary for 2,000 ft. of hose for equipment of auto fire engine.

Cote St. Paul, Que., Can.—Plans are being prepared for erection of fire station.

Welland, Ont., Can.—Citizens will vote June 27 on \$5,000 by-law for fire alarm system.

CONTRACTS AWARDED

Hartford, Conn.—Rebuilding engine, to American-La France Fire Engine Co.

Chicago, Ill.—Hose, to Republic Rubber Co., as follows: 10 lengths 3½-in. suction hose, \$2.10 per ft.; 30 lengths 4-in. suction hose, \$2.50 per ft.; 20 lengths 4½-in. suction hose \$2.90 per ft., and 10 lengths 5-in. suction hose, \$3.30 per ft.

Independence, Mo.—Supplying chemical engine and hose cart, to Anderson Coupling & Supply Co., Kansas City, \$3,100.

Hastings, Neb.—Fire hose, 500 ft., to Gutta Percha Rubber Co., \$1.25 per ft., and 500 ft. Bay State cotton hose through J. H. Haney & Co., 90c.

Glassboro, N. J.—Erection of fire house, to Frank Ware.

Yonkers, N. Y.—Combination auto fire motor engine, to Webb Motor Co., \$8,000.

Butler, Pa.—Auto combination chemical and hose truck, to Rapid Motor Vehicle Co., Pontiac, Mich.

Lebanon, Pa.—Furnishing automobile fire engine, to Webb Motor Fire Apparatus Co., St. Louis, Mo.; about \$9,000.

BIDS RECEIVED

Washington, D. C.—Furnishing combination chemical engine and hose wagon: American-La France Fire Engine Co., Elmira, N. Y., \$1,994; James Boyd & Bro., Philadelphia, Pa., \$1,819; U. S. Fire Apparatus Co., Philadelphia, Pa., \$1,625; Combination Ladder Co., New York City, \$2,075.

Macon, Ga.—Building fire house: Wilder & Paulin, \$5,873; using rough brick, \$5,427; R. H. Smalling & Son, \$6,514; W. J. Beeland, \$8,462; second bid, \$7,262; H. A. Bankston, \$6,280.

BRIDGES

Joliet, Ill.—Council will consider erection of bridge over Spring Creek at Ohio st.

Peoria, Ill.—Council has sold \$150,000 bridge bonds to Commercial German National Bank.

Hartford City, Ind.—Bids are being asked by Blackford County Commissioners for the construction of two bridges across Salamonie River.

Louisville, Ky.—Plans are being prepared for erection of viaduct, cost \$100,000, over C. and O. tracks at Hancock st.

Mt. Clemens, Mich.—Construction of concrete and steel union highway and railway bridge at Gratiot ave. is being considered.

Fulton, Mo.—Engineer W. P. Divers, Callaway County, is preparing plans for concrete and steel bridges over the Wetstone and over Miller's Creeks.—W. R. Taylor, County Clerk.

Jefferson City, Mo.—Board of Commissioners, Cole and Osage Counties, will soon have plans prepared by Engineer E. F. C. Harding for concrete and steel bridge across the Morreau River; cost \$25,000. H. B. Bodle, Presiding Judge, Cole County, is interested.

Plains, Mont.—Citizens have voted \$130,000 bonds for bridges and roads.

Arcola, N. J.—All bids opened May 23 by the Board Chosen Freeholders for constructing bridge at Arcola have been rejected.

West Seneca, N. Y.—Town Board is considering special election on construction of bridge over Cazenovia Creek at Lein's Park.

Columbus, O.—Citizens will vote in November on \$1,000,000 to erect viaduct across N. 3d st.

Portland, Ore.—New bids will be asked for \$250,000 Broadway bridge bonds; erection of bridge across Willamette is being urged.

Johnstown, Pa.—Council has passed ordinance appropriating \$1,875 for erection of highway bridge across Cheney Run.

Oil City, Pa.—County Commissioners will ask for new bids for erection of Petroleum bridge.

Richmond, Va.—City will construct proposed reinforced-concrete or stone bridge connecting wards of city; cost \$250,000.—Geo. S. Crenshaw is interested.

Clarksburg, W. Va.—County Commissioners have decided to erect \$25,000 bridge over Elk River.

CONTRACTS AWARDED

Elizabeth, N. J.—Construction of bridge over the Robinson branch of Rahway River, at Goodwin's Station, Clark Township, to Arthur E. Smith, contractor and engineer, Plainfield, \$5,490.

Dayton, O.—Stewart st. bridge to Gebhard & Kline, \$154,519.51.

MISCELLANEOUS

Chico, Cal.—Citizens have voted \$50,000 bonds for erection of city hall.

Oakland, Cal.—City Engineer Fred C. Turner has submitted plans for improving western water front.

Oakland, Cal.—City has sold \$1,760,000 bonds to N. W. Halsey & Co. and E. H. Rollins & Sons, San Francisco.

Colorado City, Col.—Citizens have defeated proposition to issue \$220,000 bonds, for purchase of South Cheyenne canon.

Trinidad, Col.—City is considering purchase of garbage cans.—D. L. Taylor, Mayor.

Decatur, Ill.—City Superintendent of Streets, Jas. C. Lemming, will ask Council to provide necessary hose and equipment for flushing streets.

North East, Md.—Town Council has sold \$7,000 improvement bonds.

Lowell, Mass.—Board of Aldermen has passed order for \$3,000, for moth extermination.

Camden, N. J.—Architect J. C. Jeffries, Mutual Life Bldg., Philadelphia, will prepare plans for proposed municipal hospital; four cottages and one main building; cost \$41,000, are proposed.

Elizabeth, N. J.—Police Committee has practically decided to recommend to Council that police patrol wagon be placed at service of Second Precinct station.

Roselle, N. J.—Citizens have voted \$20,000 for erection of borough hall on Chestnut st.

Trenton, N. J.—Bids will be received June 14 for \$19,000 park bonds.

Binghamton, N. Y.—Police Chief Birmingham has recommended erection of two police stations.

New York, N. Y.—Aldermen have appropriated \$175,000 for municipal bathing pavilion at Coney Island; \$9,850 for playgrounds, and \$6,000 for automobiles for Borough President Gresser.

Klamath Falls, Ore.—Citizens have voted \$20,000 bonds to pay for two garbage sites and erect city hall and firemen's headquarters.

Erie, Pa.—Special Committee will employ expert on question of garbage collection and disposal.—Councilman Yoke, Chairman.

Johnstown, Pa.—Council is considering ordinance appropriating \$500 to purchase street sweeper and two dump wagons.

Philadelphia, Pa.—Recorder of Deeds W. S. Vace will erect ash handling plant at 1122 Race st.

Pittsburg, Pa.—St. Louis capitalists, represented by Arthur N. Sagre, former District Attorney of St. Louis County, propose to build a city hall for city; they offer to lease site of present market house from

city for 99 years and to erect 22-story building as market, office building and city hall combined; Council has matter under consideration.

Providence, R. I.—Special Committee will recommend erection of bath house at Franklin Park.

Nashville, Tenn.—Davidson county and Nashville are considering erection of joint hospital for treating tuberculosis.—B. G. Tucker, President Davidson County Board of Health.

Nashville, Tenn.—City is considering erection of market house.

Amarillo, Tex.—City is considering erection of \$15,000 city hall and jail building.

Anson, Tex.—Citizens have voted \$10,000 bonds, for erection of city hall and fire station.

Dallas, Tex.—City Commissioners have decided to erect city hall.

Aberdeen, Wash.—Council is considering erection of \$15,000 garbage crematory.

CONTRACTS AWARDED

Evansville, Ind.—Removing garbage and dead animals, Louis Schinadel and Dave Rosenfeld, only bidders, \$15,000 a year for first five years and \$17,000 for following five years.

Glens Falls, N. Y.—Essex County jail, to Linehan & Burnham Co., city, \$37,320.

New York, N. Y.—Repairing arch, Howard L. Peterson, 1328 Broadway, New York, at \$1,498 for repairing Washington arch, in Washington square; bids were opened May 26.

Dallas, Tex.—Brick walls for county jail to Alex. Watson Construction Co., \$6,325.

BIDS RECEIVED

San Francisco, Cal.—Lighting streets and public buildings, San Francisco Gas & Electric Co., only bidder.

Jacksonville, Fla.—Gasoline automobile sprinkler: Miller Automobile Co., Jacksonville, through F. J. Miller, representing Grobowski Truck Co., Detroit, Mich., submitted a catalogue of motors, quoting any machine listed at catalogue price f.o.b. Jacksonville; W. R. Letcher, representing Edward Porter Reno Agency, Jacksonville, offered car, \$4,000 f.o.b. Jacksonville, the machine being manufactured by American Motor Truck Co., Lockport, N. Y.; J. E. Gaynon, vice-president and general manager of Jacksonville Iron Works, Frayer-Miller truck, \$3,488.70; W. F. Alley, representing Grom Motor Car Co., Bowling Green, O., \$3,700, f.o.b. factory, for chassis only, or for chassis finished complete with body, \$3,900 f.o.b. factory; McCoy Bros., Holly Hill, offered second-hand truck, said to be in first-class condition, but did not state price.

Hoboken, N. J.—Removal of ashes and garbage: Jas. Padavano, \$11,520; P. A. Faluso, \$13,000; Hoboken Contracting Co., \$12,989; removal of dead animals, Louis Stein, \$900 a year, and Henry Eberley, \$750.

West Hoboken, N. J.—Sprinkling Fallsade ave. with oil: bidders, Jos. Murphy & Son and Quinlan Oil Co.

TOO LATE FOR CLASSIFICATION

STREET IMPROVEMENTS

Mason City, Ia.—City proposes to construct one mile of sidewalks of cement concrete; two blocks will be of brick.

Hiawatha, Kan.—City has selected Tuttle & Pike, Shubert Theatre Bldg., Kansas City, Mo., as engineers for 23,000 sq. yds. of vit. brick paving; bids are being received.

Manhattan, Kan.—All bids bids have been rejected for proposed street paving; bids will be readvertised.—C. M. Brick, City Engineer.

Kansas City, Mo.—Council has passed following ordinances: Paving Oak st. and three alleys, establishing grade on 21 streets, constructing sidewalks on six streets and opening and widening Jackson st.

Kalispell, Mont.—City is considering paving with bituminous macadam.

Cranford, N. J.—Paving of Cranford st. with macadam is being considered.

New York, N. Y.—Plans have been presented to Board of Estimate for widening 34th, 23d and 42d sts.; work on latter will begin at once.

Greenville, Tex.—Citizens have voted \$100,000 bonds for street improvements.

Seattle, Wash.—City Engineer R. H. Thomson has estimated cost of street improvements as follows: Asphalt paving, 9th st., \$11,700; Howell st., \$44,000; concrete walks on Greenwood ave., \$9,500.

Appleton, Wis.—Paving of Oneida st. with creosoted blocks and Appleton st. with asphalt is being considered.

CONTRACTS AWARDED

Corona, Cal.—Improving three streets, to Newton Construction Co., \$12,000.

San José, Cal.—Changes in Monterey rd., New Coyote Station, to Monzingo & Knott, \$9,996.

Los Angeles, Cal.—Improving Burlington ave., to Fairchild-Gilmore Wilton Co., Pacific Electric Bldg., \$20,981.

Washington, D. C.—Laying 75,000 sq. yds. cement sidewalks, Holton Construction Co., lowest bidders, 92½¢ sq. yd. within city limits and \$1.18 outside limits.

Bloomington, Ill.—Paving Main and Washington sts. as follows: Brick, to I. D. Laim, city, and asphalt, to Andrews Asphalt Paving Co., Hamilton, O.; total cost \$17,000.

Rock Falls, Ill.—Paving with brick Dixon ave. and E 2d st., to J. V. McCarty, \$1.05 per sq. yd.

Springfield, Ill.—Paving with brick portion of 15th st., to H. Nelch & Son, \$1.52½ per sq. yd.; total about \$50,000.

Lafayette, Ind.—Paving as follows: To Wm. F. Frey, cement walks on 29th st., 44¢ per lin. ft., and crossings, 95¢ per sq. yd., and on Naylor st., \$1.25 per lin. ft. for gravel roadway, and 42¢ per lin. ft. for sidewalks; to Wm. Jackson on 15th st. roadway, \$1.38 per sq. yd., 45¢ per lin. ft. for walks, and 93¢ per sq. yd. for crossings.

Goshen, Ind.—Paving, 21,240 sq. yds. on W. Clinton and S. Main sts., to H. F. Banta, city; postum block will be used.

Des Moines, Ia.—Paving E. 6th st., to

Bryant-Ford-McLaughlin Co., city., \$2.29 per sq. yd.

Independence, Kan.—Paving, to F. P. Dellone & Co., \$82,201.43, and to Hepple & McSpadden, \$81,289.14; work includes 42,000 sq. yds. brick, macadam foundation on 1½-in. sand cushion, with asphalt filler, \$1.35 per yd., including price of subgrade or other excavation work; sand excavation, 35¢, rock \$1.75; setting new curb, 15,917 lin. ft., to F. P. Dellone & Co., to Hepple & McSpadden, 46¢; total bid includes paving, grading, curbing and about \$2,500 for drain sewers.—A. D. Stevens, City Engineer.

Grosse Pointe Farms, Mich.—Paving 27,750 sq. yds. with bitulithic, to Central Bitulithic Paving Co., Manistee.

Highland Park, Mich.—Paving Woodward ave. with creosoted block, to John A. Mercier, Hammond Bldg., Detroit, \$145,102.

St. Louis, Mo.—Paving 3,251 sq. yds. bitulithic, to Granite Bituminous Paving Co.

Trenton, Mo.—Paving, to Gates & Holbrook, Kansas City, Kan., as follows: Brick, High st., 3,830 sq. yds. \$1.95 per sq. yd. and S. Water st. and E. College ave., 12,635 sq. yds., \$1.99 per sq. yd.; curb, 39¢ per lin. ft.

Tilton, N. H.—Macadamizing about 8,000 ft. of State road, to B. J. Jaquith, Northfield.

Belvidere, N. J.—Constructing macadamized road from Buttville to Belvidere, to Salmon Bros., Netcong, \$29,068.

Cape May C. H., N. J.—Constructing 11 miles of seashore road, second section extending from Crooked Creek, in Cape May, to Beasley's Point, to Robt. E. Hand, about \$50,000.

(Continued on page 856)

BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
STREET IMPROVEMENTS				
Ohio	Cincinnati	June 10, noon	Improving two roads.	Stanley Struble, Pres. Co. Comrs.
Nebraska	Kearney	June 10, noon	Improving several roads.	J. H. Dean, County Auditor.
Minnesota	Duluth	June 10, noon	Filling road, etc., on Boulevard near 41st ave. West.	H. Cleveland, Sec'y Park Board.
Kentucky	Covington	June 10, noon	Furn. road building mach. 10-ton steam roller, stone crusher, 100 cu. yds. cap. ten hours; Standard grader, 400 gal. steel sprinkling wagon, scarifier or road harrower, road plow, four 6 yd. steel wagons; check, \$1,000.	J. B. Dillon, Clk. Fiscal Court.
North Dakota	Grand Forks	June 11, 2 p.m.	Road work in Township.	Town Board.
Ohio	Delaware	June 11, 2 p.m.	Bldg. Steckel road, 1.4 mile and Moss road, 4.6 miles.	W. F. Whittier, County Surveyor.
Indiana	Vincennes	June 11, 2 p.m.	Bldg. 6,391 ft. gravel roads in Johnson township.	John T. Scott, County Auditor.
Idaho	Boise Barracks	June 11, 2:30 p.m.	Macadam road, 1,600 ft., 20 ft. wide, at Barracks.	Constr. Q. M., U. S. A.
West Virginia	Benwood	June 13, 7 p.m.	Furn. and setting about 7,000 ft. of curb.	P. A. Dechau, City Clerk.
Pennsylvania	Blakely	June 13, 7:30 p.m.	Laying stone curb, Main st.	W. W. Matthews, Borough Secretary.
Texas	El Paso	June 13	Bldg. asphalt-macadam road, Clent to Faben.	A. S. Eylar, County Judge.
Ohio	Maumee	June 13	Paving 13,636 sq. yds., various materials.	G. V. Roab, Village Clerk.
Ohio	East Youngstown	June 13, 7 p.m.	Grading and improving Fairview ave. and bldg. sidewalks on Main street.	P. J. Carney, Jr., Village Clerk.
Nebraska	Hastings	June 13, 5 p.m.	Paving and curbing Dist. No. 9.	A. T. Bratton, City Clerk.
Pennsylvania	Natrona	June 13, 7:30 p.m.	Grade, pave, curb and sewer Walnut street.	W. B. Wiant, Township Clerk.
Mississippi	Vicksburg	June 13	Bldg. 7,000 ft. of curbing.	J. T. Manley, Mayor.
Pennsylvania	Wilkes-Barre	June 13, noon	Furn. 24, 26 or 28-in. standard rattler for testing paving brick, fully equipped.	Fred H. Gates, City Clerk.
Washington	Arlington	June 13, 8 p.m.	Improving sts. and aves. in Local Imp. Dist. No. 7.	H. L. Huddle, City Clerk.
Oklahoma	Nowata	June 13, 2 p.m.	Brick paving, 38,442 sq. yds.; comb. curb and gutter, sewers.	City Clerk.
New Jersey	Mt. Holly	June 13	Bldg. 4.26 miles gravel roads; E. Thompson, Engineer.	Harry E. Dubell, Dir. Freeholders.
Washington	Seattle	June 13, 2 p.m.	Gravel, rock or dirt fill, 1,000 to 10,000 yds, Sprague av.	Geo. W. Armstrong, Sec'y B. P. Wks.
Iowa	Creston	June 13, 8 p.m.	Paving 820 yds. asphaltic macadam; 280 ft. curb; also Portland cement concrete walks.	Theo. S. De Lay, City Engr.
Wisconsin	La Crosse	June 14	Building macadam roads, cost about \$10,800.	County Clerk.
Missouri	St. Louis	June 14	Brick block paving portions of several alleys.	W. B. Dryden, Sec'y Bd. Pub. Imp.
New York	Niagara Falls	June 14	Repairing all pavements, both in and out of guaranty.	A. C. Douglass, Pres. Bd. Pub. Wks.
Indiana	Huntington	June 14, 8 p.m.	Asphalt paving, one street.	W. H. Wagoner, City Engineer.
New Jersey	Dumont	June 14	Building 3 miles cement sidewalks.	Alfred Williams, Hackensack, Engr.
Ohio	Cleveland H'gts.	June 14, noon	Bldg. sidewalks.	N. N. Canfield, Village Clerk.
North Carolina	Hickory	June 14, 3 p.m.	Paving 10,000 sq. yds. of macadam, tar or asphalt binder, 6,000 sq. yds. concrete sidewalks, 9,000 lin. ft. comb. concr. curb and gutter, 36,000 cu. yds. grad.; G. C. White, Engr., Durham.	J. D. Elliott, Mayor.
Wisconsin	Superior	June 14	Building road.	County Board.
Connecticut	Hartford	June 14, 2 p.m.	Bldg. various state roads.	State Highway Commissioner.
Connecticut	Norwalk	June 14, 3 p.m.	Vit. block paving, 3,400 sq. yds., 200 lin. ft. new and 1,200 ft. old curb, 450 sq. yds. tar concrete walk repair.	Wm. B. Burnell, Chm. St. Com.
Oklahoma	Duncan	June 15	Grading 15 sts., 48 ft. wide, curbing, etc.	E. W. Loyd, City Clerk.
Florida	Ft. Barrancas	June 15, 11 a.m.	Resurfacing roadway.	Constructing Q. M.
Indiana	Peru	June 15, noon	Bldg. macadam road in Peru twp.	Charles Griswold, County Auditor.
New Jersey	Freehold	June 15, 11 a.m.	Improving two streets.	G. K. Allen, Jr., County Engineer.
Maryland	Baltimore	June 15, 11 a.m.	Grade, gutter and pave with macadam, 26th street.	B. T. Fendall, City Engineer.
New York	Utica	June 15	Furn. 8,000 gals. road oil for use on Parkway.	Sec'y Bd. Contract and Supply.
Ohio	Athens	June 15, noon	Brick paving, grading 1.52 mile; cost, \$16,614.55.	Board of County Commissioners.
Iowa	Ft. Madison	June 16	Vit. brick paving on concrete, 16,000 sq. yds; pitch or ash fill.	L. G. Kiel, City Clerk.
Ohio	St. Clairsville	June 16, noon	Grading and macadamizing 1.96 mile; cost, \$16,870.	Board of County Commissioners.
Wisconsin	Beloit	June 16, 2 p.m.	Improving a number of streets.	J. L. Hendley, Chm. Bd. Pub. Wks.
New York	Watertown	June 17	Paving with brick asphalt or bitu. macadam; cost, \$20,000.	E. W. Sayles, City Engineer.
Ohio	Cambridge	June 17, noon	Grading and macadamizing 0.51 mile; cost, \$4,704.	Board of County Commissioners.
Ohio	Delaware	June 18, 2 p.m.	Building Berkshire North Road.	W. F. Whittier, Co. Surveyor.
Florida	Lake City	June 20, 5 p.m.	Vit. brick paving, 3,000 sq. yds; 2x6 all heart pine curb.	Board of Public Works.
Ohio	Canton	June 20, 10 a.m.	Brick paving, grading, etc., 3.06 miles road.	J. H. McConnell, County Auditor.
Indiana	Mishawaka	June 20, 6 p.m.	Paving 4,550 sq. yds. brick, asphalt, bitu. or creosoted wood.	J. W. Haverly, City Engineer.
Iowa	Marshalltown	June 20, 8 p.m.	Paving, 45,600 sq. yds. cement pavements; 29,100 lin. ft. conc. curb and 12,700 sq. yds. brick block pavement.	City Clerk.
Wisconsin	Madison	June 20, 2 p.m.	Paving University Ave. with asphalt.	O. S. Norsman, City Clerk.
Iowa	Ft. Dodge	June 20, 5 p.m.	Paving, curbing and improving certain streets.	W. L. Tang, City Clerk.
New Jersey	Camden	June 21, 8 p.m.	Furn. material and doing work during year; also repairing and bldg. cement and brick sidewalks.	E. Francis, Chm. Com. on Streets.
Washington	Olympia	June 21, 2 p.m.	Improving State Road No. 2, Stevens County.	Henry L. Bowlby, Sec'y St. Hwy Bd.
Montana	Billings	June 21, 8 p.m.	Creosoted block paving, 59,856 sq. yds., Dist. No. 53.	J. D. Matheson, City Clerk.
Ohio	Carrollton	June 23, noon	Paving several streets; 6,415 cu. yd. of extra excav.; 18,904 sq. yds. vit. block paving; 14,504 ft. of straight and 1220 ft. circular curb, etc.	A. K. Rader, City Clerk.
Indiana	Crawfordsville	June 23	Bldg. cement sidewalks.	F. B. Robinson, City Clerk.
Indiana	Valparaiso	June 24	Building cement sidewalks; cost, \$5,000.	G. Stinchfield, City Engineer.
Virginia	Roanoke	June 27, noon	Building granolithic sidewalks, two jobs.	W. L. Craft, City Clerk.
Indiana	Brazil	June 30, 7:30 p.m.	Building cement sidewalks on National ave.	Jacob Prevett, City Clerk.
California	Quincy	July 8	Bldg. road	County Clerk.
SEWERAGE				
Oklahoma	Ft. Sill	June 10, 10 a.m.	Bldg. sewage purification plant, reservoir, etc.	Capt. David H. Stone, Constr. Q.M.
Kentucky	Louisville	June 10, noon	Bldg. Sect. C & D, northeastern San. Trunk sewers, Contracts 69 and 70.	Commissioners of Sewerage.
Massachusetts	Auburn	June 10, noon	Bldg. 4,046 ft. sewer in 4 sts.; city furnish pipe.	City Clerk.
Iowa	Charles City	June 13, 8 p.m.	Bldg. sewers in sundry streets.	John G. Legel, Mayor.
New York	Brooklyn	June 13, 11 a.m.	Repair, two 10,000,000-gal. Worthington sewage pumps with condenser, Hendricks st. station.	A. E. Steers, President.
New York	Madison Bar'ks.	June 13	Bldg. sewer connections, walks, roads, etc.	Constr. Q. M.
Indiana	Laporte	June 13, 7:30 p.m.	Bldg. 5 miles of 10-in. to 42-in. sewers.	City Clerk.
Florida	Dade City	June 13	Complete plans, etc., for sewer and water works system.	Board of Trade.
Iowa	Creston	June 13, 8 p.m.	Bldg. 1,400 ft. 6-in., 2,000 ft. 8-in. sewer, etc.	J. F. Golden, City Clerk.
Wisconsin	Marshfield	June 13	Building sewer in three streets.	M. G. Fleckenstein, City Clerk.
Iowa	Atlantic	June 14, 8 p.m.	Extending sewer on Cedar Street.	T. E. Nicholas, City Clerk.
Iowa	Bedford	June 14, noon	Building sewer system.	E. T. Brice, City Clerk.
Nebraska	Hartington	June 14	Bldg. 3 miles sanitary sewers; Skeels & Beck, Sioux City, Ia., Engineers.	City Clerk.
Nebraska	O'Neill	June 14, 8 p.m.	Bldg. complete sanitary sewer system; estimated cost, \$14,500; plans by Consolidated Eng. Co., Omaha.	O. F. Biglin, Mayor.
Illinois	North Chicago	June 14	Bldg. extensions to sewers, drains, etc., Train station.	Com. Officer, Naval Tr. Sta.
Missouri	St. Louis	June 14	Bldg. Glaise Creek San. Dist. Sewer, Sec. 1, with branch, of rein. concrete and brick in cement; cost, \$180,000.	W. B. Dryden, Sec'y Bd. Pub. Imp.
Ohio	Cleveland H'gts.	June 14, noon	Bldg. sewers in Maple road.	N. N. Canfield, Village Clerk.
Missouri	St. Louis	June 14	Bldg. Sec. 1, River des Peres foul water sewer; brick laid in Portland cement mortar; 5,065 ft. 9x9 ft. horseshoe shape, and 1,440 ft. 9-ft. circular sewer.	W. B. Dryden, Sec'y Bd. Pub. Imp.
Texas	Belton	June 14, 8 p.m.	Bldg. sanitary sewer system and purification plant; 4,017 ft. 12-in., 718 ft. 10-in., 18,680 ft. 8-in. vit. pipe; 67 manholes; 10 flush tanks; 3,556 cu. yds. earth excav., 118 cu. yds. rein. concrete, 500 cu. yds. broken stone, etc.	C. B. Smith, Sec'y Belton Sewer Co.
Massachusetts	Boston	June 15, 2:30 p.m.	Bldg. about 6,000 ft. open channel, 3,450 ft. 33 in. by 36 in. concr. drain and 960 ft. vit. clay pipe drain in three towns.	H. H. Sprague, Chm. Metr. Water & Sewerage Board.
Maryland	Baltimore	June 15, 11 a.m.	Bldg. sanitary sewers, Dist. 25, and certain sewers in Dist. 27; 15,000 cu. ft. 8-in. to 10-in. pipe, and 5,000 ft. 6-in. house connections.	J. B. Mahool, Pres. Bd. Awards.
Tennessee	Columbia	June 15	Bldg. sewer system.	E. E. Erwin, City Recorder.
Washington	Vancouver	June 15	Bldg. 2,600 ft. 8-in. and 10-in. pipe sewers.	City Clerk.
Utah	Salt Lake City	June 17	Bldg. pipe sewers in Sewer Extensions 246 and 251.	H. G. McMillan, Chm. Bd. Pub. Wks.

BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
SEWERAGE (Continued)				
Nebraska	Crete	June 20, 2 p.m.	Installing sewer system: 40,206 lin. ft. 8" to 30" pipe sewer: cost \$40,000. P. A. Edquist, Omaha, Engineer.	F. A. Novak, City Clerk.
Iowa	Cresco	June 20, 8 p.m.	Building 6,350 ft. 8 to 12-in. sewers.	P. J. McCullow, City Clerk.
Minnesota	Montevideo	June 20, 8 p.m.	Building sewer on Sixth street.	J. M. Sevens, City Clerk.
California	San Jose	June 20, 11 a.m.	Install sewage disposal system at County Hospital.	H. A. Pfister, Clerk Bd. of Super.
New Jersey	Camden	June 21, 8 p.m.	Furn. material and building sewers during year; also cleaning sewers.	E. Francis, Chm. Street Com.
Missouri	St. Louis	June 21	Bldg. River des Peres foul water sewer 2d section.	W. B. Dryden, Sec'y Bd. Pub. Imp.
New Jersey	Freehold	June 22, 11 a.m.	Bldg. 18,000 ft. 8-in. sewers, 3,400 ft. 4-in. iron force mains, 3 pumping stations, flush-tanks, manholes, etc.; Waring, Chapman & Farquhar, 874 Broadway, N. Y. City, Engineers.	Chas. H. Butcher, Town Clerk.
Ohio	Lebanon	June 24 noon	Bldg. 6,900 ft. 8 and 10-in. pipe sewers.	M. E. Guslin, Village Clerk.
Virginia	Roanoke	June 24, noon	Building sewers in two streets.	W. L. Craft, City Engineers.
South Dakota	Vermilion	June 27, 8 p.m.	Building sewers in Pine and Yale streets.	C. I. Vaughn, City Auditor.
WATER SUPPLY				
Oklahoma	Ft. Sill	June 10, 10 a.m.	Bldg. 500,000-gal. reservoir, etc.	Capt. David L. Stone, Q. M.
Nebraska	Petersburg	June 10, 4 p.m.	Bldg. water works system.	Wm. Ganiard, Mayor.
Pennsylvania	Tyrone	June 10	Building reservoir; also addition to present reservoir.	Tyrone Gas and Water Co.
Illinois	Macomb	June 11, 5 p.m.	Bldg. gravity filtration system, 1,000,000 gals. capacity; concrete dam with flood gate, 70 ft. long; intake crib, 6,500 ft., 12-in. c-i. pipe, comp. duplex or high duty pump, etc.	J. M. Keefer, Mayor, Chm. of Com.
Massachusetts	Lynn	June 13, noon	Furn. horiz. tubular boiler, 78-in. diam. by 19 1-2 ft. long, tubes 4 in. by 18 ft., overhead suspension.	D. A. Sutherland, Supt. Water Bd.
Massachusetts	Cherry Valley	June 13	Bldg. \$75,000 water works; N. E. Craig, Spencer, Engineer.	Chan. Smith, Chm. Water Com.
Minnesota	Raymond	June 13	Bldg. \$6,000 water works; Rovat & Bennett, Willmar, Engrs.	A. Abrahamson, Village Recorder.
Wisconsin	Marshfield	June 13, noon	Building 400 ft. 6-in. water pipe.	M. G. Fleckenstein, City Clerk.
New Jersey	Atlantic City	June 14, 2:30 p.m.	Building pumping station at Absecon.	L. Van Gilder, Supt. Water Works.
Colorado	Animas City	June 14, 6 p.m.	Building water supply system.	Pearl Roberts, Town Clerk.
Michigan	Detroit	June 14, 3 p.m.	Furn. 1,500 1-in. and 5,000 5-8-in. corporation cocks, also laying 275 ft. 16-in. submerged water pipe across river; furn. seven 16-in. submarine joints.	Benj. F. Guiney, Sec'y Water Board.
Illinois	North Chicago	June 14, 10 a.m.	Extension to water mains, U. S. Training Station.	Bur. of Supplies and Accounts.
New York	Harrison	June 14, 4 p.m.	Bldg. water supply system, including well, pump house, 2 triplex pumps, 2 induction motors, elevated tank, 21,000 ft. water mains, gate valves, hydrants, etc.	Edw. G. Gainsboro, Pres. B. of W. Com.
Ohio	Cleveland Hgts.	June 14	Laying 2,507 ft. 6-in. water main.	H. H. Canfield, Village Clerk.
Michigan	Detroit	June 14, noon	Erecting engine-room super. at new pumping station.	Benj. F. Guiney, Sec'y Water Bd.
Missouri	Huntsville	June 14, 6 p.m.	Bldg. \$30,000 w. w. L. G. Knapp & Co., N. Y. Life Bldg., Kansas City, Engineers.	J. B. Holman, City Clerk.
New York	New York	June 15, 12 p.m.	Furnishing double-nozzle fire hydrants.	H. S. Thompson, Com'r Water Supply, Gas and Electricity.
Pennsylvania	Pittsburg	June 15, noon	Bldg. 150,000 to 175,000-gal. steel reservoir.	J. Francies, Warden, Penitentiary.
South Carolina	Gaffney	June 15, noon	Furn. 9 miles 6-12-in. c-i. pipe, fittings, hydrants, valves, etc.; bldg. pump station and filtration plant, complete, inc. elec. mach., heating plant, hydraulic con., etc.; also standpipe found.; Wm. E. Lyon, Engr., Duval Bldg., Jacksonville, Fla.	J. N. Lipscomb, Chm. Bd. Pub. Wks.
New Jersey	Camden	June 15, 8 p.m.	Furn. c-i. pipe, specials, hydrants, valves, etc.	J. S. Broome, Chm. Water Com.
South Dakota	Tyndale	June 15	Bldg. 50,000 gal. conc. reservoir; changes in water works; bldg. elec. light plant; laying 325 ft. 8-in. sewer, etc.; cost \$16,000.	H. B. Phoenix, City Auditor.
Nebraska	Petersburg	June 16, 4 p.m.	Building water works system.	Gus Diers, Village Clerk.
Indiana	Batesville	June 16, 7 p.m.	Extending water mains.	J. F. Drescher, City Clerk.
Indiana	South Bend	June 17, 10 a.m.	Building water connection in two streets.	O. C. Bastian, Chm. Bd. Pub. Wks.
Kentucky	Dayton	June 20, 8 p.m.	Franchise for bldg. and operating water system.	Will C. Martin, City Clerk.
New York	Spencerport	June 21, 2 p.m.	Bldg. complete w. w. system: 25,000 lin. ft. trenching and laying 4, 6, 8 and 10-in. pipe; furn. 500 tons c-i. pipe, 20,000 tons specials; furn. and set 46 hydrants, 38 stop valves and boxes; furn. and erect 100,000-gal. el. tank, 15x35 ft. pump-station, 20 h.p. duplicate pump-plant, open well, 75 cu. yds. concrete; Morrison & Farrington, Inc., Syracuse, Engrs.	Dr. Wm. R. Barrett, Village Pres.
Wyoming	Cheyenne	June 21	Bldg. reinforced-concrete lined reservoir, 5 miles from city; 2,800 cu. yds. concrete; 55 tons reinforcement; city to furnish cement, pipe and specials.	F. A. Bacon, City Clerk.
Georgia	Atlanta	June 21, noon	Bldg. 8,000,000 gals. horizontal pressure filter plant.	W. Z. Smith, General Manager.
Kansas	Stafford	June 27, 8 p.m.	Building water works system.	J. R. Mullen, Mayor.
Kansas	Ft. Leavenworth	June 30, 10:30 a.m.	Furn. 85 tons soil pipe and fittings, 1,600 brass cocks, 795 non-siphoning basin traps and 10,000 ft. wrought iron pipe, etc.	Maj. T. H. Slavens, Con. Q. M.
Utah	Salt Lake City	July 8, 10 a.m.	Sinking an artesian well on Levan ridge, Juab Co.	W. H. Farnsworth, Sec'y Land Bd.
BRIDGES				
Colorado	Denver	June 11, noon	Bldg. 66-ft. also 32-ft. concrete-steel highway bridge.	C. W. Comstock, State Engineer.
Indiana	Scottsburg	June 13, 11 a.m.	Building 50-ft. bridge over White Oak Creek.	Frank Gardner, County Auditor.
Arkansas	Ft. Smith	June 13	Bldg. sub., super. or both; nine 196-ft. spans, double-track elect. ry., single-track ry.; 2 sidewalks, etc.; steel, 4,000 tons; masonry, 10,000 cu. yds.; Waddell & Harrington, Kansas City, Mo., Engineers.	R. M. Johnston, Sec'y Bridge Dist.
New Jersey	Newark	June 13, 3 p.m.	Extension of 2-arch bridge on Cedar ave. and concrete culvert, Livingston twp.; concrete culvert, Bloomfield.	James Owen, County Engineer.
Ohio	Delaware	June 13, noon	Bldg. east abutment of Africa bridge, Orange township.	W. H. Bodurtha, County Auditor.
Ohio	Lima	June 14, noon	Bldg. bridge over Hog creek, German township.	C. R. Phillips, County Clerk.
Ohio	Cincinnati	June 17, noon	Bldg. sub. and superstructure of lift bridge.	Fred. Drehs, County Clerk.
Ohio	Bellaire	June 14, 10 a.m.	Concrete work for number of county bridges.	Board of County Commissioners.
Indiana	Danville	June 14, 10 a.m.	Building various bridges.	County Board of Comrs.
Indiana	Circleville	June 15, noon	Building sub. and super. two-span steel rein. conc. bridge.	J. A. Dodd, County Auditor.
Indiana	New Castle	June 16, 10 a.m.	Building arches, culverts and bridges.	W. L. Risk, County Auditor.
Ohio	Elyria	June 17, 1 p.m.	Building concrete culvert and doing bridge work, 2 jobs.	C. N. Lawrence, Co. Surveyor.
Georgia	Cedartown	June 20	Bldg. three concrete bridges.	J. L. Moore, Chm. Co. Commissioners.
Oklahoma	Tulsa	June 21	Bldg. 28 bridges.	C. F. Rogers, County Clerk.
Missouri	St. Louis	June 21	Bldg. foundations and concrete work for viaduct, also approaches on Kings highway; deposit, \$10,225.	M. Reber, Pres. Bd. Pub. Imp.
Ohio	Cleveland	June 22, 11 a.m.	Bldg. a culvert in River Rock township.	F. R. Lander, County Surveyor.
Ohio	Cleveland	June 25, 11 a.m.	Bldg. 2 concrete bridges, one culvert and bridge extension.	F. R. Lander, County Surveyor.
Ohio	Warren	June 27	Building bridge over Yankee Run in Hubbard.	W. R. Carrington, Clerk Co. Comrs.
Manitoba	Winnipeg	June 28, 11 a.m.	Constructing concrete piers, Brown and Brant St. bridge.	M. Peterson, Sec'y Bd. Control.
South Dakota	Pierre	July 3	Building various bridges.	C. M. Price, County Auditor.
Washington	Stevenson	July 5, 1 p.m.	Bldg. bridge over Little White Salmon river, Sec. 15, Twp. 4.	Bd. of Comrs, Skamania County.
Virginia	Leesburg	July 25	Bldg. rein. concrete or iron bridge across "The Dutchman"; 55-ft. span, 12-ft. roadway, and abutments; also for bldg. bridge over Little River, near Aldie.	J. J. Crim, Chm. Co. Comrs.
LIGHTING AND POWER				
Minnesota	Ft. Snelling	June 11, 10 a.m.	Remodeling electric light plant at Fort.	Capt. J. M. Campbell, Constr. Q. M.
Saskatchewan	Prince Albert	June 11	Furn. 2 return tub. boilers, 6x18 ft., 150 lbs. working pressure.	C. O. Davidson, City Clerk.
Iowa	Paulina	June 13	Erecting an electric light and power plant.	David Algyer, Town Clerk.
Pennsylvania	Catasauqua	June 13	Lighting various streets and alleys in borough.	A. B. Lee, Borough Secretary.
Mississippi	Jackson	June 13, 8 p.m.	Furn. and installing electric motors.	Supt. State Institution for Deaf.
Minnesota	Virginia	June 13	Constructing "White Way" in park.	Park Board.
Kentucky	Paris	June 14	20-yr. franchise for furn. artificial and natural gas.	Mayor.
South Dakota	Tyndale	June 15	Bldg. electric light plant, changes in water works, etc.; brick bldg. 42x86 ft., gas producer plant, 2 units or crude oil engines, elec. installation, 2 units; pole line and wiring; 25 h.p. motor, etc.; Oscar Claussen, St. Paul, Minn., Engr.	H. B. Phoenix, City Auditor.

BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
LIGHTING AND POWER (Continued)				
Virginia	Bedford City	June 15	Bldg. power house turbines, transmission lines, and elec. apparatus for hydro-elec. plant; dam built; total cost, \$100,000; Francis R. Weller, Washington, D. C., Engineer.	L. R. Gills, Lighting Comr. E. T. Colman, Mayor.
Idaho	Idaho Falls	June 17, 3 p.m.	Bldg. hydroelectric plant and pumping station.	Wm. MacNamara, City Clerk.
New York	Fulton	June 17	Purchase of franchise for furnishing electricity.	W. Glen Abbott, County Clerk.
Michigan	Stanton	June 22, noon	Bldg. power house, plumbing, heating, wiring, etc.	J. R. Mullen, Mayor.
Kansas	Stafford	June 27, 8 p.m.	Rebuilding electric light plant.	B. F. Batman, City Recorder.
Virginia	Luray	June 27	Lighting streets, 3 or 5 years; price on arc lights, 4 and 6 amp.; mean, 16 and 32 c. p.	County Building Commissioners. G. W. Jonas, Sec'y W. P. B. Imp. Co.
Ohio	Cleveland	June 29, 2 p.m.	Building power plant, installing equipment, building tunnel, steam pipe, condenser, etc.	
Florida	West Palm Beach	July 1	Constructing electric light plant, etc.	
MISCELLANEOUS				
Ohio	Toledo	June 10, noon	Disposal of garbage.	Geo. W. Tonson, Dir. Pub. Service.
New York	New York	June 13	Repair second-size Nott engine.	R. Waldo, Fire Commissioner.
Mississippi	Jackson	June 13, 8 p.m.	Furn. fire hose for institution for Deaf.	J. R. Dobyns, Superintendent.
California	Bakersfield	June 13	Erecting 3-story and basement Court House.	I. I. Miller, Clk. Bd. Superv.
Nebraska	Holdrege	June 13	Bldg. \$85,000 Court House. W. F. Germandt, Archt.	C. L. Hedlund, Clk. Co. Superv.
New York	Elmira	June 13, 5 p.m.	Bldg. city hall.	Daniel Sheehan, Mayor.
Illinois	Monmouth	June 14, noon	General contract for erection of hospital; separate bids for electric wiring and plumbing.	John S. Brown, Chm. Bldg. Com.
Louisiana	New Orleans	June 14	Bldg. W. A. Kernaghan wharf; material furnished.	Hugh McCloskey, Pres. Port Com.
Minnesota	St. Paul	June 14	Furn. Second size steam fire engine.	Wm. O'Gorman, Sec'y Fire Board.
New Jersey	Elizabeth	June 15, 8 p.m.	Removing garbage and ashes.	J. R. M'Namara, Chm. Com. Health.
Ohio	Cincinnati	June 15, noon	Furn. auto for Director of Public Service.	J. J. Wenner, Clk. Bd. Pub. Service.
Florida	Key West	June 15, noon	Building addition and repairing county jail.	E. W. Russell, Clerk Circuit Court.
West Virginia	Wheeling	June 15, 11 a.m.	Bldg. Pierce dam foundation and extension of piers, Dam 13.	Capt. F. W. Alstaetter, U. S. Engrs.
West Virginia	Clarksburg	June 15, noon	Material and labor for laying 28,400 ft. 16 to 4-in. c. i. main, 50 gate valves and boxes; 35 fire hydrants; also 3,000,000-gal. mech. filter plant, 200,000-gal. clear water basin, 600,000-gal. rein. concrete coagulating basin, with brick and steel filter bldg.; two 3,000,000-gal. low-lift cent. pumps, driven by high-speed engines, 3,000,000-gal. multi-stage turbine high-lift pump and turbine, two 200-h.p. water tube boilers, brick and steel boiler house, 1,000,000-gal. rein. concrete reservoir, 16-in. c. i. suction line, etc. Hering & Fuller, 170 Broadway, New York City, Engineers.	W. H. Lewis, Pres. W. W. & Sew. Bū. Arch. Gordon, Co. Supervisor.
New York	Goshen	June 16, noon	Alterations at County Jail and Court House.	Jos. Hasskarl, Act. Dir. Bd. Pub. Aff.
Pennsylvania	Philadelphia	June 17	Furn. dredge, tugboat and dump scows.	Fred Dreih, County Clerk.
Ohio	Cincinnati	June 17, noon	Bldg. retaining wall at Elwood, Millcreek township.	Commandant, Navy Yard.
Massachusetts	Boston	June 18, 11 a.m.	Bldg. refuse kiln at navy yard.	E. L. Ostertag, Comptroller.
Wisconsin	Oshkosh	June 18	Furn. 1,000 ft. 2½-in. fire hose.	
Kentucky	Louisville	June 20, 10 a.m.	Steel furniture and equipment for vaults of office building of Water Works Company.	C. F. Grainger, Pres. Bd. Water Wks.
Minnesota	Montevideo	June 20, 8 p.m.	Building 3-ward lock-up.	J. M. Severens, City Clerk.
West Virginia	Wayne	June 22	Bldg. 40-mile telephone line, grounded system.	Chas. Rigg, Mgr. Centerville Tel. Co.
Ohio	Cincinnati	June 22, noon	Erecting police station. Kennedy & Adkins, Architects.	R. F. D.
Ohio	Columbus	June 30, noon	Furn. 25,000 or more sets of auto. number plates.	E. G. Prior, Sec'y Bd. Pub. Safety.
Colorado	San Francisco	June 30	Building sea wall: 43,000 tons rock, 95 tons structural steel and 6,000 cubic yards concrete.	C. A. Thompson, Sec'y of State.
Florida	West Palm Beach	July 1	Hydraulic dredging, 300,000 cu. yds.	Harbor Commissioners.
Dist. of Col'bia	Washington	July 1, 2 p.m.	Installing 75-ft. aerial extension ladder, raising mechanism on truck.	Geo. W. Jonas, Sec'y W. P. B. Imp. Co.
Illinois	Rock Island	July 4	Installation of fire alarm system.	C. H. Rudolph, Chm. Bd. Comrs.
Mississippi	Natchez	Aug. 3	Sprinkling streets.	M. T. Rudgren, City Clerk. W. G. Benbrook, Mayor.

South Orange, N. J.—Resurfacing 12,000 sq. yds. paving and macadamizing 2,700 sq. yds., to Ludwig Batt, city, \$15,000.

Brooklyn, N. Y.—Crushed trap rock and trap rock screenings, to Clinton Point Stone Co., 115 Broadway, New York City, \$9,861; Hudson River road gravel, to Robt. Carter & Co., 551 Prospect pl., city, \$15,072.

Asheville, N. C.—Paving 12,000 sq. yds. with bitulithic, to Atlantic Bitulithic Co., Richmond, Va.

Cincinnati, O.—Road improvement, as follows: Blddingr Pike, to Nugent & Hine, \$13,284; Hammel rd., to J. P. Hunley, \$15,026.

Springfield, O.—Paving Yellow Springs st. with sheet asphalt, with Bolin brick between car tracks, to Peters Bros., Chicago, \$61,043.40.

Portland, Ore.—Paving two streets, to Oregon Hassam Paving Co., \$90,572.

Carnegie, Pa.—Paving Main st. and 4th ave., to J. G. McGuire & Co., New Brighton, \$1.42 per sq. yd. for concrete, 20c. per lin. ft. for resetting curb, and 55c. per lin. ft. for new curbs.

Ft. Worth, Tex.—Paving 46,200 sq. yds. with bitulithic, to Texas Bitulithic Co., Dallas; asphalt on Washington, E. 1st, E. Weatherford sts. and 5th ave., to Metropolitan Co., \$1.95 per sq. yd.

Blaine, Wash.—Paving with asphalt Washington st., to Thorsrig & Miley, \$42,524.

Seattle, Wash.—Paving Westlake ave., to Barber Asphalt Paving Co., for \$62,769, and for grading and concrete walks on Corliss ave., to J. T. Donaldson & Co., for \$10,333; improving Federal ave., to F. McLellan, Burke Bk., city, for total of \$158,217; bid was as follows: Clearing and grubbing, lump sum, \$3,000; subgrading, 26,000 cu. yds., 31c.; curb, straight concrete, 23,324 lin. ft., 33c.; curb, straight arm'd concrete, 7,883 lin. ft., 60c.; curb, curved arm'd concrete, 5,100 lin. ft., 65c.; asphalt paving, 38,172 sq. yds., \$1.60; brick paving, 11,874 sq. yds., \$2.50; brick block paving, 1,222 sq. yds., \$2.50; sandstone block, 4,960 sq. yds., \$3.50; gutter, brick, 679 sq. yds., \$2.50; alley crossings, concrete, 101 sq. yds., \$1.20; alley crossings, brick, 21 sq. yds., \$2.50; concrete walks, 1,164 sq. yds., \$1; concrete walks, re-

pairing, 200 sq. yds., \$1.10; wooden stops, 448 lin. ft., 40c.; 20 catch basins, each \$50; 5 catch basins, each \$65; 33 inlets moved, each \$5; 20 inlets adjusted, each \$3; 7 curb inlets, each \$7; adjusting 81 catch basins and manhole covers, each \$3; concrete, for retaining wall, 190 cu. yds., \$7; shear boards, 1 M. ft. B. M., \$20; old lumber, 5 M. ft. B. M., \$6; wood bulkhead, lumber, 5 M. ft. B. M., \$20; bulkhead, iron, 1,000 lbs., 5c. Totals of other bids: Independent Asphalt Paving Co., 3d and Cherry sts., \$158,689; Barber Asphalt Paving Co., White Bldg., \$166,163; P. J. McHugh, \$169,370.

Watertown, Wis.—Paving 5th and N. 5th sts., to Ed. L. Bartlett, Washington st., \$20,704.

Virden, Man., Can.—Constructing 15,000 lin. ft. cement sidewalks, to Western Pavels, Ltd., Winnipeg.

BIDS RECEIVED

San José, Cal.—Improvement of 1st st., Barber Asphalt Paving Co., pavement, 19½c. per sq. ft.; curbing, 30c. per lin. ft.; gutters, 15½c. per sq. ft.; catch basins, \$36.75 each. Ransome-Crummey Co., pavement, 19c. per sq. ft.; curbing, 30c. per lin. ft.; gutters, 17c. per sq. ft.; catch basins, \$35 each.

Cœur d'Alene, Idaho.—Paving, (a) Sherman st., (b) Improvement District No. 8, (c) Improvement District No. 9, (d) Improvement District No. 10, (e) Improvement District No. 11: Inland Empire Hassam Paving Co., (a) \$61,213, (b) \$44,589, (c) \$36,976, (d) \$14,238, (e) \$5,659; Bloom & Co., (a) \$66,962; Murphy & Co., (a) \$66,962, (b) \$61,737, (c) \$52,282, (d) \$20,275, (e) \$8,221; C. M. Baine, (b) \$41,995, (c) \$36,995; (d) \$14,245, (e) \$6,745; Smith, Root & Boyle, (b) \$39,500, (d) \$13,000; Wetzel & Foster, (b) \$47,333, (c) \$37,927, (d) \$15,138, (e) \$6,100; Joslin & Hamley, (c) \$35,921, (e) \$6,200.

Manhattan, Kan.—Paving: Western Paving Co., creosoted wood block, \$31,630.80; Haskins & Ramsey, brick, \$30,102, asphaltic concrete, \$23,026; Kansas Pavink Co., asphaltic concrete, \$24,605.34; John Ritchie, brick, \$28,208.—C. M. Buck, City Engineer.

Grand Rapids, Mich.—Paving Market st.,

Carpenter & Anderson, lowest bidders, \$22,583; Montgomery ave., William L. Johnson, lowest bidder, \$6,444.

Lansing, Mich.—Paving Cedar st., Farrell Bros., lowest bidders, \$18,178.

New York, N. Y.—Repaving with asphalt block on present foundation, Brook ave., from Webster to Wendover ave., Hastings Pavement Co., lowest bidder, as follows: 14,470 sq. yds. of completed asphalt block pavement, and keep same in repair for five years, \$1.78; 320 cu. yds. concrete, including mortar bed, \$6.84; 220 lin. ft. new curb, set in concrete, \$1.15; 600 lin. ft. old curb, reset in concrete, 50c.; total, \$28,475; the Barber Asphalt Co. bid for this work \$29,978.

Syracuse, N. Y.—Street paving, Montgomery st., John Young, lowest bidder on vit. brick or block, with stone curb, \$20,391, and with cement curb, \$19,432.20; Warner-Quinlan Co., lowest bidder on asphalt, with stone curb, at \$21,502.55; T. C. Lowery, lowest bidder for Danforth st. pavement on vit. brick or block, with stone curb, \$22,672, and on cement curb, \$21,767.90; Long & Miller, on macadam, with stone curb, at \$16,480.20, and with cement curb at \$15,750.20; F. J. Baker, on asphalt, with stone curb, at \$23,610.50, and Central City Paving Co., on asphalt, with cement curb, \$23,723.95.

Johnston, Tex.—Improving La Porte and Seabrook road, W. S. Hipp, \$22,848; E. G. Smith, \$22,330; Texas Grading Co., \$22,056; W. D. Haden, \$21,120.

SEWERAGE

Porterville, Cal.—Citizens have voted \$40,000 bonds for sewer and street improvements.—Irvin H. Althouse, Engineer.

Herington, Kan.—Bonds of \$23,000 are being sold for main and submain sewers, vit. pipe and brick for septic tank.—Burns & McDonnell, Kansas City, Mo., Engineers.

Springfield, Mo.—City proposes to construct septic tank at the mouth of city sewer, with a daily capacity of 3,000,000 gals.—H. G. Horton, City Engineer.

Missoula, Mont.—Bids will be received about July 1 for construction of a sewer

system, from plans of Swearingen & McCulloch, city.—W. A. Logan, City Clerk.

Binghamton, N. Y.—Council has decided to construct sewers in Elm st. and Orton ave.—D. C. Herrick, City Clerk.

Carthage, O.—Bids will be received June 21 for \$25,000 sewer and disposal works bonds.—L. Hall, Village Clerk.

Kenosha, Wis.—Council has decided to sewer Rice Park.

CONTRACTS AWARDED

Brush, Col.—Construction of sewers in Districts 1 and 2, from plans of C. H. Meeker, McCook, Neb., to C. Walker & Son, North Platte, Neb., as follows: District 1, 2,500 ft. 8-in. pipe, 60c.; 4,100 ft. 10-in., 70c.; 1,300 ft. 12-in., 85c.; 17,000 ft. 15-in., \$1; outlet complete, \$275, and 55 manholes, \$650; vertical ft., \$3.75; total, \$25,796. District 2, 16,700 ft. 8-in. sewer, 60c.; 50 m. h. 500 vertical ft., \$3.75; 8 flush tanks, each, \$85; 1,500 ft. 1-2 service, 25c.; total, \$12,945; totals of both districts, \$38,741. Total of other bids received: P. O'Brien & Son, Denver, \$38,898; Inter-Mountain Bridge and Construction Co., Tecumseh, Neb., \$41,798; Thos. McGovern, Denver, \$46,307; Seevie Bros., Denver, \$40,499; Dillon, Stone Co., Denver, \$43,213; Vickery & Foster, Denver, \$39,323; George E. Cox, Ft. Morgan, \$44,212.

Binghamton, N. Y.—Sewers, to T. V. McManus, \$413.18; Maiden lane, to George Serfina, \$197.76; Oak and Gaines sts., to T. B. Bidwell, \$1,840.16.

Sanford, N. C.—Constructing 7 miles of pipe sewers from 8-in. to 20-in. diameter, and appurtenances; also a concrete settling tank, from plans of Gilbert C. White, Durham, to Edwards Construction Co., Hickory; pipe to be furnished by Pomona Terra Cotta Co.

Seattle, Wash.—Sewer, Lakeview ave., to Geo. W. Walker, \$19,388, and J. Rutke for sewer on 3d ave., N. W., \$11,821.

Montreal, Que., Can.—Sewers as follows: Trunk sewer in Laurier Ward, to L. Giguere & Co., \$115,655, and to M. Dineen, for No. 3 section of Sherbrooke st. sewer, \$43,730.

BIDS RECEIVED

San Francisco, Cal.—Constructing sewer, Seventh st., Metropolitan Construction Co., lowest bidder, \$165,000.

Osage City, Kan.—Construction of sewers from plans of Burns & McDonnell, Kansas City, Mo., to Boyd Construction Co., Kansas City, Kan., at the following bid: 32,899 lin. ft. 8-in. vit. sewer pipe, 20c.; 4,089 lin. ft. 10-in. sewer pipe, 28c.; 2,292 lin. ft. 12-in. sewer pipe, 35c.; 15-in. sewer pipe, 50c.; 11,097 cu. yds. excavation, 6 ft. deep, 20c.; 12,445 cu. yds. excavation, 6 to 8 ft. deep, 25c.; 7,851 cu. yds. excavation, 8 ft. to 10 ft. deep, 30c.; 3,100 cu. yds. excavation, 10 to 12 ft. deep, 45c.; 4,350 cu. yds. excavation, 12 to 14 ft. deep, 85c.; 515 cu. yds. excavation, 14 to 16 ft. deep, 85c.; 992 6-in. on 8-in. Y's, each, 50c.; 84 6-in. on 10-in. Y's, each 60c.; 71 manholes, each \$40; 25 flush tanks, each \$70; 1,945 cu. yds. rock excavation, \$2.65; 1,892 cu. yds. excavation, 60c.; 306 cu. yds. concrete, \$9; 8,240 lbs. reinforcing steel, 3c.; 800 lbs. structural steel, 3c.; 8 manhole castings, each \$7; 48 manhole steps, each 40c.; 1,400 ft. 4-in. drain tile, 7c.; total for disposal only, \$8,573; total for complete system, \$40,940. Totals of other bids for complete system: McGuire & Stanton, Leavenworth, \$42,117; Tonkawa Construction Co., Tonkawa, Okla., \$43,154; Johnson & Hyatt, Sedalia, Mo., \$42,716; Freeborn Engineering Construction Co., Kansas City, Mo., \$42,078.

Syracuse, N. Y.—Sewer system, Stinard ave., Albert Gaffey, lowest of nine bidders, \$1,868.30.

WATER SUPPLY

Kingsburg, Cal.—Council is considering calling election on bonds for water works.

Manchester, Conn.—Manchester Water District is considering securing water supply, including sinking of well and erection of pumping station.

Wrightsville, Ga.—City has sold \$25,000 bonds for construction of water works; contract will be let as soon as plans are completed.—Arthur Pew, Atlanta, Engineer; J. M. Blackshear, City Clerk.

Sparta, Ga.—City proposes to construct water works at cost of \$40,000; engineer not yet selected.—John D. Walker, Mayor.

Greendale, Ind.—John W. Hill & Son will prepare plans for improving water supply for Greendale Water Co.

Clay Center, Kan.—Public Utilities Commission has decided to purchase a new pump of 7,500,000 gals. capacity, to be used for direct pressure system.—C. F. Hasmusen, Superintendent.

Stillwater, Minn.—Citizens have voted \$145,000 bonds to purchase plant of Stillwater Water Co.

Beatrice, Neb.—Citizens have voted \$70,000 bonds for improvements to water works and electric light system.—W. K. Palmer Co., Kansas City, Mo., Engineers.

Black River, N. Y.—Water Commissioners have sold \$26,000 bonds for water works improvements.—J. P. Brownell, Carthage, Engineer.

Buffalo, N. Y.—Council has approved ordinance providing for \$500,000 bond issue to continue new water works construction.

Saranac Lake, N. Y.—Bids will be received in July for water mains, to cost about \$28,000.—John L. Collins, Engineer; S. A. Miller, City Clerk.

Franklin, O.—John W. Hill & Son, Cincinnati, will prepare plans for improvement of water supply.

Newport, O.—Water Works Commissioners are discussing project of erecting a standpipe in Clifton Heights back of Newport and furnishing that district with water supply.

La Crosse, Wis.—City has employed F. C. Harper, Kansas City, Mo., to investigate water situation; a new water system costing \$200,000 and including a sedimentation basin is being considered.

Toronto, Ont., Can.—Board of Control has employed Geo. H. Benzenberg, Milwaukee, Wis., and E. H. Keating, former City Engineer, to report on feasibility of extending water intake pipe 2,000 ft.; City Engineer Rust will prepare plans and specifications for proposed extension.

CONTRACTS AWARDED

Dows, Ia.—Extension to water works, to Des Moines Bridge and Iron Co., Des Moines.

Clifton, Ky.—Water works improvements, to Jos. G. Hermann, Newport, \$10,115.

Blount, Miss.—Additional water main extensions, to Cooper-Greer Co., Gulfport, \$5,000.

LIGHTING AND POWER

Gadsden, Ala.—Capt. R. H. Cobb, Anniston, has applied for a franchise to operate wires carrying power into this city; dam will be constructed at lock No. 2 on Coosa River.

Long Beach, Cal.—Edison Gas and Electric Co. is planning to erect gas plant and holder on Inner Harbor property.

Owatonna, Minn.—A. L. Ober, of Chatfield, has petitioned Council for electric light franchise.

Sacramento, Cal.—County Board of Supervisors has granted franchise to Jos. Shaw to construct electric power line over county roads.

San Francisco, Cal.—The War Department has instructed Quartermaster-General to advertise for bids for installation of complete electric lighting system for Presidio grounds.

Hawkinsville, Ga.—Citizens have petitioned, Cal.—Sierra-San Joaquin Electric Co., of Los Angeles, is preparing to develop hydroelectric power plant on Tule River in this county.—W. G. Kerchoff, President.

tioned the City Council to call election on \$25,000 bonds for extensions and improvements to municipal electric light plant and water works system.

Council Grove, Kan.—Plans are being prepared by Burns & McDonnell, Kansas City, Mo., for municipal lighting plant.

Hiawatha, Kan.—Plans are being prepared by Tuttle & Pike, Shubert Theater Bld., Kansas City, Mo., for improvements to electric light plant.

Centreville, Md.—Board of Town Commissioners has under consideration application for a franchise to install gas plant at same time the sewerage system is being constructed.

Ravenna, Mich.—Civil Engineer has been engaged by the Ravenna Improvement Association to make measurements and take levels with a view to construction of a cement dam for utilizing the waters of Crocker Creek, which flows through town, for electric power.

Robbinsdale, Minn.—Plans are being prepared for electric light system.

Beatrice, Neb.—Citizens have voted \$70,000 bonds for improvements to electric light and water works system.—W. K. Palmer Co., Kansas City, Mo., Engineers.

Fairton, N. J.—Fairfield Gas Co., Fairton County, has been incorporated to operate gas works in township of Fairfield; capital \$30,000.—S. J. Franklin and A. Brandriff, Jr., Millville, and J. T. Whitecar and E. H. Whitecar, Fairton, Incorporators.

Columbus, O.—East State st. merchants are planning to install 63 Tungsten lights on that thoroughfare; cost as estimated by Superintendent Gamper, of city light plant, is \$6,300.

Shamokin, Pa.—Plans are now being prepared by the Shamokin and Coal Township Light, Heat and Power Co. for gas plant.

McKenzie, Tenn.—City is considering construction of electric light system.

Walla Walla, Wash.—The Columbia Light and Power Co. will build a power line from North Yakima to Walla Walla via Pendleton, using power generated in Yakima Valley plant.

CONTRACTS AWARDED

Redondo Beach, Cal.—Erecting condensing apparatus at Redondo Beach for the Pacific Light and Power Corporation, to Alberger Condenser Co., New York City, at \$34,950.

Portland, Ore.—Building dam for Portland Railway, Light and Power Co., to Puget Sound Bridge and Dredge Co., Seattle; cost about \$325,000.

Gunnison, Utah.—Entire hydraulic and electrical equipment for Gunnison Valley Power Co., to Allis-Chalmers Co., Milwaukee, Wis.; turbine will be of 540 h. p., operating under 221 ft. static head; wiring materials and fixtures, to Western Electric Co., New York City; entire cost \$50,000.

Crewe, Va.—Installing electric light plant, to J. Kent White, Waynesboro.

FIRE EQUIPMENT

Rock Island, Ill.—Bids will be received July 4 for fire alarm system.—M. T. Rudgren, City Clerk.

Havre De Grace, Md.—Street Committee has rejected as too high all bids received for proposed home for hose company.

Albany, N. Y.—Site in Delaware ave. section has been selected for proposed truck house.

New York, N. Y.—Board of Estimate has voted \$200,000 for preliminary work in installation of fire alarm system.

Oshkosh, Wis.—Bids will be received June 18, 10 a. m., for 1,000 ft. 2½-in. fire hose.—E. S. Ostertag, City Comptroller.

CONTRACT AWARDED

Binghamton, N. Y.—Furnishing 500 ft. wax-treated fire hose, to Fabric Hose Co., \$1.10 per ft.

BRIDGES

Junction City, Kan.—Council is considering erection of cement arch bridge over Sand Creek on Webster st.

Marysville, Kan.—Construction of a bridge over Big Blue River is being considered; cost about \$16,000.

Elizabeth, N. J.—Garwood Borough has petitioned County Freeholders to build two bridges across Foster's Creek.

New York, N. Y.—New Jersey Interstate Bridge Commission has rejected all bids for test borings for bridge across Hudson River.—H. W. Hodge, Consulting Engineer; F. R. Long, New Jersey, and Bridge Commissioner Martin, Special Committee.

Pittsburg, Pa.—Council is considering ordinance authorizing advertisement for bids for completion of bridge crossing Negley Run.

CONTRACTS AWARDED

Columbus, Neb.—Rebuilding Platte River wagon bridge, to Standard Bridge Co., Omaha, \$37,000.

Hackensack, N. J.—Construction of culverts in various parts of county: Madison ave., Cresskill, to George M. Brewster Construction Co., city, \$3,000; West Clinton ave., Tenafly, to Ernest Abrahams, Hackensack, \$943; Columbus ave., Garfield, to George M. Brewster Construction Co., \$489; Forest ave. extension, Englewood, to William Broadhurst, Hackensack, \$459; Norman pl., Tenafly, to Ernest Abrahams, \$965, and Ross pl., Hohokus, to John H. McGee, of that place, \$360.

Cleveland, O.—Constructing concrete arch bridge on Union road, to Northern Ohio Paving and Construction Co., city; cost about \$8,000.

Dayton, O.—Stewart st. river bridge, to Gebhart & Kline, \$154,519.51.

BID RECEIVED

San Francisco, Cal.—Constructing Mission viaduct, Keystone Construction Co., \$104,000; Foster & Vogt, \$109,997, and Metropolitan Construction Co., \$106,990.

MISCELLANEOUS

Montgomery, Ala.—Mayor Gaston Gunter has made arrangements for construction of garbage incinerator.

Atlanta, Ga.—City has sold \$625,000 improvement bonds to J. H. Hillsman & Co., city, at total premium of \$8,821.

Columbus, Kan.—Oklahoma & Kansas Railway is about to start surveys for proposed electric line to connect Columbus and Galena with Baxter Springs; line will then extend south through Sunny Side, Lincolnville and Hattantville, Okla., to Miami, Okla.; W. K. Palmer Co., Engineers, Kansas City, Mo., have been retained as Consulting Engineers.—C. F. Lambert, Chief Engineer.

Virginia, Minn.—City is considering construction of incinerator; cost about \$12,000.

Grand Forks, N. D.—City is considering construction of garbage incinerator.

Riverton, Tex.—Plans are being prepared by Tuttle & Pike, Shubert Theater Bld., Kansas City, Mo., for proposed park.

Superior, Wis.—City will construct garbage crematory.—E. B. Banks, City Engineer.

PROPOSALS

PUMPING ENGINES

Macomb, Ill.

Sealed proposals will be received by the City Council of Macomb, Illinois, until 5 o'clock p. m., June 11, 1910, for one compound duplex or high duty pump of a capacity of 1,000,000 gallons of water each twenty-four hours, delivered to the stand-pipe against elevation of 239 feet, with all steam connections made and completed ready to connect.

Bidders and contractors are advised to consult the ordinance passed by the City Council of the City of Macomb therefor, at an adjourned meeting held May 19, 1910.

All bids must be accompanied with detailed plans and specifications of said pump and its equipment, which plans and specifications need not be sealed.

All bids must be accompanied with a certified check made payable to Jno. M. Keefer, Mayor of the City of Macomb, for 5 per cent of the amount of the bid, as an evidence of good faith, the same to be forfeited to the City of Macomb upon a failure of bidder to accept contract upon any bid accepted.

All bids should be addressed to Charles B. Smithers, City Clerk of the City of Macomb, Macomb, Illinois.

The City of Macomb reserves the right to reject any and all bids and plans and specifications.

Dated at the City of Macomb, Illinois, this 21st day of May, A. D., 1910.

JNO. M. KEEFER, Mayor;
J. B. BUTTERFIELD,
H. M. ELWELL,
P. E. ELTING,
J. W. WYNE,
J. P. DRAKE,
O. H. PIPER,

Water Works Committee of the City of Macomb. (22-23)

WATER WORKS

Huntsville, Mo.

Notice is hereby given that sealed bids will be received by the Mayor and City Council of the City of Huntsville, Missouri, up to six o'clock P. M., on the 14th day of June, 1910, and then publicly opened, for the furnishing of material as herein-after specified, and for the installation of the same. This to be used in the construction of, and to constitute a Water Works System to be owned and operated by the City of Huntsville, Mo.

Section I. Fire Hydrants, Valves and Valve Boxes. Certified Check.....\$100.00

Section II. Cast Iron Water Pipe and Specials. Certified Check..... 500.00

Section III. Elevated Tank and Tower (100,000 gal. cap.). Certified Check 200.00

Section IV. Installation of Material and General Construction Work.— Certified Check 400.00

Plans and specifications for the above are on file with the City Clerk of Huntsville, Mo., and at the office of the undersigned Engineers and complete copies for private use may be obtained of the Engineers for \$5, to cover cost of issue. Specifications covering Sections I, II, and III will be furnished free on request, but a deposit of \$3 is required on loaned copies of Section IV to guarantee their return to the Engineers before date of opening bids.

Plans and specifications have been approved and bids are hereby authorized.

(Signed) R. L. RUTHERFORD, Mayor.
J. B. HOLMAN, City Clerk.
L. G. KNAPP & COMPANY, Engineers,
Kansas City, Missouri.

BRICK PAVING

Lake City, Fla.

On June 20, 1910, at 5 P. M., bids will be opened for approximately 3,000 square yards of vitrified brick pavement, laid flat; 2x6, all heart pine curbing, to be furnished by contractor.

BOARD OF PUBLIC WORKS.

WATER WORKS SYSTEM

Macomb, Ill.

Sealed proposals will be received by the City of Macomb, Illinois, until 5 o'clock p. m., June 11, 1910, for extensions to the water works system, including twelve (12) inch cast-iron pipe line (about 6,500 feet) and a concrete dam with flood gate about seventy (70) feet long, said pipe line and dam to be constructed according to the plans and specifications now on file in the office of the City Clerk of the City of Macomb; also gravity filtration system of 1,000,000 gallons capacity; two centrifugal pumps of 600,000 gallons capacity each; one engine of sufficient power to operate said plant; one battery of two boilers sixty-six (66) inches in diameter and sixteen (16) feet long, high pressure with all equipment; one feed water heater, of at least 200 horsepower; eighteen (18) inch cast-iron pipe line (about 100 feet); one circular concrete reservoir forty (40) feet in diameter and fifteen (15) feet deep; one intake crib; one well not less than 6 feet in diameter and of a depth at least 6 feet below low water level of creek; one smokestack about seventy-five (75) feet high; necessary building to enclose all machinery, filter system and equipment.

Bidders and contractors are advised to consult the ordinance passed by the City Council of the City of Macomb therefor, at an adjourned meeting held May 19, 1910.

All bids, except those for the pipe line first above mentioned and the concrete dam, must be accompanied with detailed plans and specifications of the work or equipment, bid for which need not be sealed.

All bids must be accompanied with a certified check made payable to Jno. M. Keefer, Mayor of the City of Macomb, for 5 per cent of the amount of the bid, as an evidence of good faith, the same to be forfeited to the City of Macomb upon a failure of bidder to accept contract upon any bid accepted.

All bids should be addressed to Charles B. Smithers, City Clerk of the City of Macomb, Illinois.

The City of Macomb reserves the right to reject any and all bids and plans and specifications.

Dated at the City of Macomb, Illinois, this 20th day of May, A. D., 1910.

JNO. M. KEEFER, Mayor;
J. B. BUTTERFIELD,
H. M. ELWELL,
P. E. ELTING,
J. W. WYNE,
J. P. DRAKE,
O. H. PIPER,

Water Works Committee of the City of Macomb. (22-23)

SEWERS

Cresco, Iowa.

The incorporated City of Cresco, Iowa, will receive sealed bids until June 20th, 1910, at 8 o'clock P. M. Construction of sewers as follows:

Sec. 1. Main sewer No. 2, about 1,900 feet 12-inch sewer.

Sec. 2. Main sewer No. 2, about 1,750 feet 12-inch sewer.

Lateral sewer No. 9, about 1,300 feet 8-inch sewer.

Lateral sewer No. 10, about 1,300 feet 8-inch sewer.

With suitable appurtenances. All in accordance with plans and specifications now on file with the City Clerk. Each of the above named sewers must be bid on separately. All bids must be accompanied with certified checks of One Hundred Dollars (\$100.00) each, made payable without recourse to the City of Cresco, Iowa. The city reserves the right to reject any or all bids, to waive defects, and to accept any bid. All bids must be in sealed envelopes, marked on the outside, "Sewerage Bids," and addressed to P. J. McCullow, City Clerk.

P. J. McCULLOW,
City Clerk.

W. L. RICHARDS, Engineer.

\$380,000.00 BONDS

City of Huntington, W. Va.

Written sealed bids will be received until noon, June 23rd for following bonds of the City of Huntington, West Virginia:

\$80,000.00 30 year 5% Building Site Bonds.
\$75,000.00 30 year 5% Improvement Bonds.
\$225,000.00 Paving Bonds, bearing 6% interest.

one-fifth thereof payable in two years; one-fifth thereof payable in four years; one-fifth thereof payable in six years; one-fifth thereof payable in eight years, and one-fifth thereof payable in ten years.

Mail bids to Board of Commissioners, Huntington, W. Va.

(22-23) K. L. HAMILTON,
Clerk.

WATER WORKS SYSTEM

Spencerport, N. Y.

Sealed proposals for the construction of a complete water works system will be received at the office of the Board of Trustees, Spencerport, N. Y., until 2 p. m., Tuesday, June 21, 1910.

The principal items are approximately as follows:

25,000 lin. ft. trenching and laying 4-in., 6-in., 8-in. and 10-in. pipe.

Furnishing—

500 tons 4-in., 6-in., 8-in. and 10-in. cast-iron pipe.

20,000 lbs. special castings.

Furnishing and setting—

46 Hydrants.

38 stop valves, 4-in., 6-in., 8-in. and 10-in.

38 valve boxes.

Furnishing and erecting—

1 elevated tank, 100,000 gallons capacity.

1 pumping station, 15 x 35.

1 duplicate pumping plant consisting of 20 h.p. gasoline engines and pumps.

1 open well.

75 cu. yds. concrete.

Bids must be made out on blank proposals furnished by the village and accompanied by a certified check for \$1,000. A bond of \$12,000 will be required. The right is reserved to reject any or all bids.

Plans may be seen and specifications obtained at the office of the Board of Trustees, Spencerport, N. Y., or at the office of the Engineers, Syracuse, N. Y.

WM. R. BARRETT,
President of Village,
Spencerport, N. Y.

MORRISON & FARRINGTON, INC.,
Engineers,
Syracuse, N. Y. (23)

PAVING

Marshalltown, Iowa.

Sealed proposals will be received at the office of City Clerk until June 20th, 1910, at 8 o'clock p. m., for paving certain streets and alleys.

Work comprises approximately 45,600 sq. yds. cement pavement, 24,300 lineal feet concrete curb, 12,700 sq. yds. brick block pavement and 4,800 lineal feet concrete curb.

For specifications, etc., address City Engineer.

BRICK PAVING

Nowata, Ok.

Bids will be received by the City Clerk, Nowata, Ok., until 2 P. M., June 13, 1910, for constructing 38,442 square yards brick pavement, together with combined curb and gutter and storm sewers. Certified check for 2 per cent of amount of bid required. For details and specifications, address City Engineer, Nowata, Ok. P. O. Box No. 847.

AERIAL EXTENSION LADDER

Office of the Commissioners of the District of Columbia

Washington, D. C.,

June 1st, 1910.

Sealed proposals will be received at this office until two o'clock, P. M., Friday, July 1, 1910, for installing a seventy-five foot aerial extension ladder and raising mechanism on one truck used in the Fire Department, D. C. Specifications and form of proposal may be obtained upon application to the Property Clerk, D. C., Room 316, District Building.

CUNO H. RUDOLPH,
JOHN A. JOHNSTON,
WILLIAM V. JUDSON,
Commissioners, D. C.